DEVELOPING THE BASIS FOR CREATING ENVIRONMENTAL NETWORKING ORGANIZATIONS IN DOWNSTATE ILLINOIS

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by

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LIST OF ABBREVIATIONS AND ACRONYMS

AMC	association management company
ASCE	American Society of Civil Engineers
AWMA	Air and Waste Management Association
CICI	Chemical Industry Council of Illinois
DCEO	Department of Commerce and Economic Opportunity
ENO	Environmental Networking Organization
GSHMM	Gateway Society of Hazardous Materials Managers
IEPA	Illinois Environmental Protection Agency
ISPE	Illinois Society of Professional Engineers
ISTC	Illinois Sustainable Technology Center
MEP	Manufacturing Extension Partnership
MPF	metal parts fabrication
NAICS	North American Industry Classification System
NGO	nongovernmental organization
NIST	National Institute of Standards and Technology
OPP	Office of Pollution Prevention
OSHA	Occupational Safety and Health Administration
P2	pollution prevention
POTW	publicly owned treatment works
RCRA	Resource Conservation and Recovery Act
SIAM	Southwest Illinois Advanced Manufacturing
SIUE	Southern Illinois University Edwardsville
SIEMA	Southern Illinois Environmental Managers Association
UNL	University of Nebraska-Lincoln
USEPA	United States Environmental Protection Agency

ABSTRACT

Through their work with Illinois industry, the Illinois Sustainable Technology Center (ISTC) prevents pollution from entering the environment while assisting companies to maintain economic viability. A majority of their work has been with companies in the northern and central parts of the state. ISTC would like to increase their visibility and use of their technical assistance services by industry in the St. Louis Metro-East. This project was initiated to develop the concept of and a model for an environmental networking organization (ENO) that ISTC could use to achieve this goal. Four models were evaluated to determine their potential to increase the visibility and use of ISTC's services by industry in the Metro-East – a new traditional environmental networking organization (ENO), a new web-based ENO, a partnership-based ENO, and an outsourced ENO. It was found that a partnership-based ENO offers the most feasible option at this time. The benefits for ISTC include access to partner organizations' membership and wider exposure. However, these efforts will need to be sustained to show results through increased use of ISTC's services. ISTC's focus should be on providing speakers for partner organizations' regular meetings, rather than holding separate events. ISTC should develop a list of potential speakers and topics and provide it to the local organizations, in particular the Gateway Society of Hazardous Materials Managers and the Air and Waste Association – Greater St. Louis Section. The key is to offer a variety of relevant topics, both broad and focused, with engaging, informative speakers that will provide a positive impression of ISTC, even if the speaker is not from ISTC.

CHAPTER 1. INTRODUCTORY MATERIAL

Background and Problem Statement

A study of the environmental infrastructure in Madison and St. Clair Counties in Illinois found that hazardous waste generators produced significant quantities of hazardous waste (Morgan, 2004; ASCE, 2003). They accounted for approximately 16% of the total toxic releases in Illinois between 1995 and 1999 (IEPA, 2001) with nearly 24 million pounds released in 1999 (Table 1). While these counties have ranked between third and seventh in terms of total toxic releases in Illinois (Table 2), in 1999 there were 0.56 million pounds per facility released in Madison County and 0.35 million pounds per facility in St. Clair County, compared to 0.06 million pounds per facility in Cook County, which was ranked first (Figure 1). While there were fewer generators, they were larger than those in Cook County.

The generators were generally in compliance with applicable regulations (Morgan, 2004; ASCE, 2003). While proper waste management is essential to protect human health, the environment, and economic prosperity, reducing the amount of waste generated is a more effective method of providing that protection. Two of the top 12 facilities reporting source reduction in Illinois between 1995 and 1999 were in the study area (one in Madison County and one in St. Clair County) (IEPA, 2001). However, in 1998, two facilities were in the top-20 list of facilities that released and transferred the largest total amount of toxic chemicals (excluding offsite transfers for recycling or energy recovery) (IEPA, 2000). One facility was fourth, with a total release and transfer of 6.0 million pounds; the other was fourteenth, with a release of 3.0 million pounds.

Table 1. Total releases of toxic chemicals. [1]

County	Releases (million lb)		Rank	
	1997	1999	1997	1999
Madison	9.7	14.6	3	3
St. Clair	4.6	8.8	7	7

Source: IEPA 2001

[1] Part of the increase in releases between 1997 and 1999 can be attributed to an increase in the number of facilities required to submit toxic release inventory reports.

Table 2. Ranking of Illinois counties by total releases of toxic chemicals.

County	Rank							
	1988	1994	1995	1996	1997	1998	1999	1994-1999
Madison	3	3	3	3	3	3	3	4
St. Clair	2	7	5	5	7	6	7	5

Source: IEPA 2001, IEPA 2000

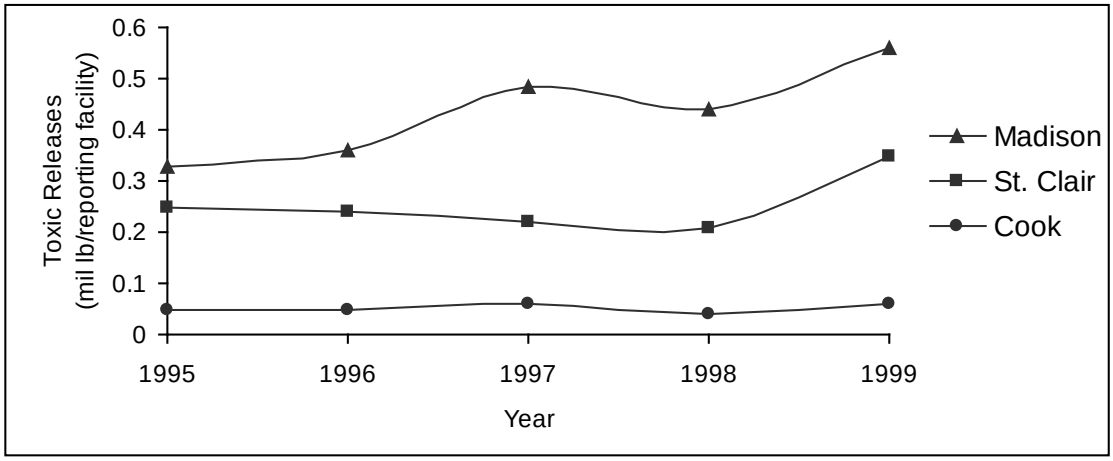

Figure 1. Releases of toxic chemicals in Illinois counties (source: IEPA 2001)

Their releases and transfers accounted for 8.5% of the releases and transfers of the top 20 facilities and 4.4% of the total releases and transfers from all reporting facilities. In addition, two generators in Madison County were ranked second and fourth in terms of the amount of Resource Conservation and Recovery Act regulated waste managed onsite, and accounted for 8.0% of the total waste managed onsite (184,884 tons) (IEPA, 1999).

There appears to be ample room for improvement to reduce the generation of waste. And while it is commonly believed that the simple pollution prevention (P2) methods, i.e., the low-hanging fruit, have all been implemented, they have not (National Pollution Prevention Roundtable, 2003). In fact, according to the United States General Accounting Office (2001), "a representative from the Illinois Office of Pollution Prevention remarked that state engineers rarely visit a facility without finding fairly simple pollution prevention opportunities to suggest," despite the existence of state assistance and recognition for industries implementing P2.

The Illinois Sustainable Technology Center (ISTC, formerly the Waste Management and Research Center) has assisted industries, mainly in the Chicago area and in central Illinois, with implementing sustainable solutions to environmental and economic challenges. They are interested in increasing their visibility and the use of their technical assistance services in the St. Louis Metro-East. The question was how ISTC can best initiate contact and assist the industries in this region in implementing source reduction, reuse, and recycling projects. Regional industry appears to be reluctant to pursue P2 projects, even leaving state dollars targeted to the region unused (Hudson, 2004). Potential impediments to project implementation nationally have been found to be (National Pollution Prevention Roundtable, 2003):

- lack of time,
- perceived high cost,
- low priority among business owners,
- disinterest in and unawareness of P2 success and programs in general, and
- lack of regulatory enforcement.

Locally, it is likely that a significant barrier for technical assistance also includes the number and diversity of industrial types and business sizes in the region. Figure A-1 illustrates the variety of industries in the St. Louis Metro-East regarding their sizes, types, and geographical locations. Between 1995 and 1999, 38 to 53 facilities in Madison and St. Clair Counties reported toxic releases (IEPA, 2001a). However, Madison County alone had 601 RCRA-regulated facilities as of December 2004 (United State Environmental Protection Agency (USEPA)). The 24 Madison and 10 St. Clair County facilities that participated in the 2002 Toxic Release Inventory covered 14 and 10 industrial categories, respectively, ranging from food and leather to printing, chemicals, plastics, petroleum, and fabricated metals (USEPA, 2002).

In addition, the region lacks local trade organizations or a central networking organization that can be used to disseminate information efficiently. Regional networking organizations exist, but their emphasis is currently focused on either recognition or regulations. ISTC may be able to assist industry in overcoming the impediments to P2 implementation by creating an effective local networking organization.

Project Objectives

The goal of this project was to develop and test a model for an environmental networking organization (ENO) that could offer ISTC increased access and effectiveness to engage with industries in the St. Louis Metro-East of Illinois. The specific objectives of the project were to:

(1) investigate if an ENO would be an effective method to reach local industry;
(2) assess and develop the interest of local industries in such an ENO;
(3) explore and determine if existing organization(s) could be used to serve the purpose of ENO or if a new organization needed to be created; and
(4) validate the effectiveness of the chosen ENO model.

Literature Review

Typically, it is challenging to promote pollution prevention and technical assistance initiatives to small- and medium-sized companies, especially when the companies belong to diverse industries and are dispersed over a wide geographical area. The major obstacles identified from a survey of Rhode Island‘s automotive refinishing industry about its practices in risk reduction and P2 included: (1) the range of chemicals used and activities were wide, (2) the sizes of many companies were small (nearly half employed three or fewer people), and (3) the business management and operational requirements (e.g., worker training and regulatory compliance) were complex (Enanader et al., 1998). A study about environmental attitude and behaviors of the New England metal finishing industry had similar findings. Most companies saw their environmental activities as a business decision and justified their efforts at environmental compliance for the necessity of staying in business. They were, therefore, unwilling to invest resources to any activities that went beyond compliance (Konar, 2000). In a study of P2 barriers in the metal parts fabrication (MPF) industry in Illinois, Bierma and Waterstraat (1995) found that MPF business managers’ primary concerns were productivity and profitability. Therefore, manufacturing instead of P2 innovation was the focus of many companies.

It has been recognized that the lack of access to technologies and expertise relevant to the needs of industries is a major barrier to P2 (Miller and Liebl, 1996). To address this problem, the federal and state environmental protection agencies as well as relevant P2 organizations have created and are building a national virtual library on P2, where technical information and successful P2 applications are made available to the general public. For example, USEPA Region 5 posts links in its homepage to *Pollution Prevention Information Clearinghouse*, where users can find USEPA's P2 publications: *Small Business Gateway*, in which relevant federal law and regulations are posted and assistance and technical help to small businesses are offered; and *Envirosense*, which links to a national database of P2 products and services and provides environmental profiles of industrial sectors (www.epa.gov 2006). Miller and Liebl (1996) described the development of a Pollution Prevention Assistance and Information Database (P2AID), which aimed to help small manufacturers to address their environmental compliance problems with an emphasis on P2. The University of Nebraska at Omaha developed and supported a website which provides technical support to state and local technical assistance providers in the area of P2, energy efficiency, and manufacturing improvements (www.P2ric.org, 2006). P2ric is part of the eight regional information centers of the National P2 Resource Exchange (P2Rx.org) that received support from the National Pollution Prevention Roundtable (NPPR), the NIST Manufacturing Extension Partnership (MEP), and USEPA. The problem is that such valuable information sources are underused by many companies because the companies in which P2 information and expertise typically are not readily available usually seek information from their suppliers, customers, competitors, etc. (Bierma and Waterstraat, 1995).

There is no shortage of government-driven P2 programs. Many are organized and managed at state agencies such as the Washington State Department of Ecology, the New Hampshire Department of Environmental Services, the Office of Pollution Prevention and Technical Assistance of the State of Indiana, the Illinois EPA's Office of Pollution Prevention (IEPA, 2004), and ISTC's technical assistance program. These state agencies not only provide technical assistance to industries but also publish relevant P2 guidelines and information such as the "Pollution Prevention & Compliance Successes through Technical Assistance" publication by the Washington State Department of Ecology (WSDE, 2001). However, many industrial managers feel uncomfortable engaging with government-driven P2 technical assistance programs because of insufficient trust of government agencies (Bierma and Waterstraat, 1995).

Many studies have found that partnership can be a desirable model to effectively engage industries in P2 and technical assistance initiatives. Murdock and Sexton (2002) described a "Good Neighbor Dialogues" model trialed in Minnesota, in which community environmental advocacy organizations worked with local industrial companies to set up community-company partnerships. This project found that the keys to a successful partnership included using an independent and skilled facilitator to serve as moderator, providing the participants independent technical assistance, and creating a relationship in which the companies and community shared the value of cooperative environmental decision-making. The University of Nebraska-Lincoln (UNL) reported a "Partners in Pollution Prevention" (P3) model, comprised of three parties: the university (UNL), a state agency, and industry (Dvorak et al., 2003). Each summer, this P3 program placed about 15 junior and senior engineering and science students as interns in Nebraska companies. These student interns received training from UNL and then worked with businesses in the areas of P2. Youngblood (2005) quantified the direct and indirect benefits of

this program in an extensive research project and found that the P3 program produced a significant and positive impact on P2. Kansas State University has a Pollution Prevention Institute that received a USEPA Environmental Education grant to provide free and non-regulatory technical assistance and training in pollution prevention and environmental compliance. Erten-Unal and Aydlett (1997) reported a similar partnership that was organized in Virginia between Old Dominion University and Hampton Roads Sanitation District Industrial Waste Division (a regulatory and regional wastewater service provider). The entities undertook this initiative to complement and supplement existing P2 programs, aiming to expand the P2 service at the local level. The cooperative approach was studied in detail by Konar (2000), who examined the policy perspective on regulatory compliance using the New England metal finishing industries as a case study. Konar concluded that a cooperative approach is the best to advance EPA's environmental policies, when a balanced combination of enforcement and outreach is carefully crafted and promoted.

Such a partnership approach is also suggested for effective organization and operation of environmental non-governmental organizations (NGOs). NGOs form networks among local, national, and international entities, efficiently using limited human and financial recourse and expert knowledge (Ryu et al., 2004). The benefits and values of linking higher education and NGOs were demonstrated in a case study of community-based land reclamation (Haigh 2006).

CHAPTER 2. METHODOLOGY AND PROCEDURES

The project was organized and conducted in two phases. The tasks to achieve project objectives 1 through 3 were completed in Phase I, and the tasks to achieve project objective 4 through 7 were completed in Phase II. Major tasks were:

(1) identifying relevant and potentially interested parties,
(2) identifying and developing partners,
(3) defining the needs of industry,
(4) determining the feasibility and usefulness of creating an ENO for Madison and St. Clair Counties,
(5) developing ENO model(s),
(6) developing interest in the chosen ENO model, and
(7) testing and demonstrating the validity of the chosen ENO model.

The methodologies for each task are described in detail in the following sections.

Task 1. Identifying Relevant and Potentially Interested Parties

To identify relevant and potentially interested parties that the ENO would be built upon and would serve, both industrial companies and existing organizations were considered. Surveys, direct contacts, interviews, and meetings were used.

To identify industrial parties, a database of companies in Madison and St. Clair Counties as of 2007 was developed using a database from the Southwest Illinois Advanced Manufacturing (SIAM) Center, online USEPA databases, the online Harris Directory, and an attendance list from a local workshop sponsored by the Chemical Industry Council of Illinois. The compiled data, shown in Appendix A, included the type and sector of these companies and their contacts. Samples of the data were checked for quality and completeness with additional information sources such as ISTC project staff, SIAM, directories of trade organizations, phone books, and referrals of industrial contacts.

To identify existing organizations that are relevant to industrial pollution prevention, waste reduction, and resource conservation, the project team considered all government-sponsored agencies, not-for-profit groups, and local professional organizations in Madison and St. Clair Counties, in other regions of Illinois, and in St. Louis, Missouri. A database of existing regional organizations was developed and is shown in Appendix B. The team's prior experience and contacts and Internet were used to collect background information on these organizations about their goals and audience, by-laws and policies, educational events, conferences/workshops, newsletters, website, outreach programs, membership development and renewal, sponsoring parties, and their interactions with corresponding regional and national organizations. Additional information about the organizations were obtained from the project's Technical Advisory Group and contacting officers of select organizations.

Task 2. Identifying and Developing Partners

To identify and develop partners and stakeholders, major factors considered included: (1) broad representation – major industries, existing organizations, and government agencies; (2) strong interests in the goals of the project; (3) willingness and availability to participate in and contribute to activities of the project; and (4) likelihood to support the ENO if an ENO were established. Findings from Task 1 formed the basis of the selection. After the selected partners and stakeholders agreed to participate in the project, they were surveyed and interviewed to seek in-depth knowledge and information about the status and needs of their industries relating to pollution prevention. They were also engaged at the early stages of the project for their input in developing the concepts of an ENO. Findings are reported in the results section. The industries and organizations that were contacted for forming the project advisory group are summarized in Table 3. The initial meeting with the advisory group was held on November 7, 2006. Two of the organizations sent representatives; none of the industries attended, although two had indicated they would.

Table 3. Organizations and industries contacted to serve on the advisory group.

Name	Agreed to Serve
Organizations	
Air & Waste Management Association - Greater St. Louis Section	Yes
Chemical Industry Council of Illinois	Yes
Illinois Manufacturers Extension Center	Yes
Gateway Society of Hazardous Materials Managers	Yes
Southern Illinois Environmental Managers Association	Yes
Industries	
Cerro Flow Products Co.	No
Conoco Phillips Wood River Refinery	Yes
Cooper B-Line, Inc.	No
Heidtman Steel Products, Inc.	No
Highland Machine & Screw Products Co.	Yes
Precoat Metals	Yes

Task 3. Defining the Needs of Industry

The needs of industry were defined through a questionnaire, interviews, and meetings to seek answers to the following questions:

- What environmental problems do they need to address right now, in the near future, and in the long run?
- What actions do they need to take to respond to their environmental problems?
- What type of assistance is needed to solve their environmental problems? Where do they get such assistance now? Is the currently available assistance adequate?
- Who is representing them? Are the current representatives effective and adequate to meet their needs in the areas of pollution prevention/reduction and resource conservation?
- What services does an ENO need to provide to attract their attention and participation?

A mail survey was used to obtain information from the industries for use in developing the model for ISTC to engage local industry (Appendix C). The survey collected information about companies' awareness of ISTC, their interest in using ISTC's services, their use of environmental technical assistance, and the adequacy of their sources of technical assistance. Respondents were also asked to rate the frequency they obtain environmentally-related information for work from different sources and the adequacy of that information (e.g., its relevance and timeliness). Some respondents rated all categories while others rated only those, presumably, for which they were more familiar. Furthermore, based on discussions at the initial advisory group meeting, a survey was e-mailed to the advisory group, including those who had neither agreed nor declined to serve (Appendix D). The survey was designed to determine local industries' top concerns, their top needs to address those concerns, and their preferences for obtaining technical assistance.

Task 4. Determining the Feasibility and Usefulness of Creating an ENO for Madison and St. Clair Counties

The considered parameters and study methodology are described in Table 4 for the usefulness study and Table 5 for the feasibility study.

Table 4. Usefulness of an ENO.

Parameter	Issues Studied	Methodology of Study
1. Services the proposed ENO can provide	• Technical assistance: wastewater, hazardous waste, air emission, water conservation • Environmental Management System: internal environmental management, compliance reporting and documentation	• ISTC staff (Chicago, Peoria, Brighton) • IEPA P2 staff • Literature review
2. The gap the ENO can fill in	• Compliance concern: meet regulatory requirements • Cost reduction/efficiency improvement: waste management, reduce resource and energy consumption • Long term planning: green manufacturing	• Results/findings from survey and focus group and open meetings
3. The value of ENO services to the industries	• Meet compliance requirements • Improve efficiency of environmental management • Cost reduction and efficiency improvement in waste management	• Mapping to match service and gap • Literature review

Table 5. Feasibility of an ENO.

Parameter	Issues Studies	Methodology of Study
1. Location/Office	• A new traditional ENO office (ISTC-Brighton?) • A new web-based ENO (who to host the website?) • A partnership-based ENO (with whom?): • An outsourced ENO (to whom?)	• Map locations of companies using their addresses. Does the ENO office need to be close to industry sites? • Contact listed organizations to see if they are willing and capable to run the office. What conditions they will ask for?
2. Membership/Staff	• Office staff: how many, from where, what salary? • Advisory Council: how to select and on what terms? What groups: industry, government (e.g. ISTC, IEPA), university, other organization? • Membership: recruitment and grouping - by company's type, size, location?	• Role and responsibility of the office staff (outreach, technical consulting, web) • Use the focus group • Existing organizations' membership structure and development strategy (the list)?
3. Start-up Costs	• If a dedicated office: furniture and supplies • If web-based: web design and set-up. Database development. • If affiliated: what will the other organization ask for?	• Estimate costs based on listed needs • Estimate costs based on the scope of work: develop own web/database or just link to existing database developed by others • Find out and list what the other organization asks for
4. Operational Costs	• If a dedicated office: office rental, staff salary, office suppliers, travel, mailing • If web-based: on-going maintenance and update (consultant vs. full or part-time staff) • If affiliated: on-going support • All above: seminar expenses (fee-based break-even operation?)	• Estimate cost based on the needs
5. Funding/Revenue	• State-funded: ISTC, IEPA, others? • Self-funded: membership, selling ad (in what form?), donation (from whom?) • Others: economic development, federal, trade union organization?	• Compile list of funding programs and possible sources (literature, web search, phone, meeting)
6. Industry Support	(1) Which companies are willing to be part of advisory council or core member? (2) What support they can provide?	• Contact representative companies • Get specifics about the support based on results of focus group and open meeting, as well as written communications
7. Organization Support	• Which organizations are willing to work together (e.g., AWMA)? • In which areas (workshop, membership list, marketing, etc.)?	• Contact representative organizations • Get specifics about the support, based on results of focus group and open meeting, as well as written communications
8. Government Agency Support	• Which agencies (e.g., ISTC, IEPA-P2 program, USEPA Region 5) • In which areas (workshop, membership list, marketing, etc.)?	• Specific support the government (local, county, state, federal) agencies can provide (meeting results and written communications)

Table 6. Potential models of an environmental networking organization (ENO).

Model	Description
New traditional ENO	Conventional professional organization
New web-based ENO	Virtual organization with interaction primarily online
Partnership-based ENO	Collaboration between ISTC and one or more existing organizations
Outsourced ENO	Existing organization that is capable and willing to fulfill the role of an ENO

Task 5. Developing ENO Models

The project team identified four potential models for the environmental networking organization (ENO) as shown in Table 6. Data from the literature and Internet were gathered to assist the assessment of each model. Each parameter was then assigned a score of -1, 0, or 1 to indicate whether it would be a negative, neutral, or positive aspect of each model. Table 15 in the results section shows the scoring rubric. Each option was ranked based on its overall score and its "feasibility" and "usefulness" scores.

In addition, industries and organizations from a variety of sectors (Table 7) were interviewed to obtain input on the four models. The interviews were either in person or over the telephone and were conducted by the project team together or by individual members of the project team using a baseline of questions to maintain consistency. Additional industrial input was obtained through personal contacts and the use of the database developed in the early part of the project.

Task 6. Developing Interest in the Chosen ENO Model

Input from the advisory group was solicited. Six industrial companies, five professional and trade organizations, and nine government organizations (including three ISTC field offices) were interviewed. The chosen model (partnership-based ENO) was further discussed with partner organizations through meetings that involved ISTC staff.

Task 7. Test and Demonstrate the Validity of the Chosen ENO Model

The chosen partnership-based ENO model was tested to demonstrate its validity through two workshops. One was held on March 13, 2008, sponsored jointly by ISTC, the Air and Waste Management Association – Greater St. Louis Section, and the Gateway Society of Hazardous Materials Managers (GSHMM). The second was held on November 13, 2008 with GSHMM collaborating with ISTC. The selection of workshop topics, speakers, format, venues, and advertisement were jointly organized by the partner organizations. A questionnaire and interviews with officers of partner organizations were used to evaluate the workshops.

Project Quality Assurance

To ensure the accuracy and completeness of the data, information from various sources was compared and analyzed. The process to select the advisory group paid special attention to ensure that the selected participants reflected the nature and characteristics of Metro-East industries.

Table 7. Organizations and industries contacted for interviews.

Name	Interview Date
Government Organizations	
Illinois Entrepreneurship Center – SIUE	3/22/07
Illinois Office of Pollution Prevention – Collinsville	1/19/07
Illinois Manufacturers Extension Center – Carbondale	1/30/07
Illinois Small Business Development Center – SIUE	3/22/07
Illinois Small Business Environmental Assistance Program - Springfield	3/15/07
Illinois Waste Management and Research Center[1] – Chicago Office	2/14/07
Illinois Waste Management and Research Center[1] – Brighton Office	1/16/07
Illinois Waste Management and Research Center[1] – Peoria Office	3/16/07
Southwest Illinois Advanced Manufacturing Center – SIUE	3/29/07
Professional and Trade Organizations	
Air & Waste Management Association - Greater St. Louis Section	1/15/07
Chemical Industry Council of Illinois	1/17/07
Gateway Society of Hazardous Materials Managers	4/5/07
Illinois Society of Professional Engineers	3/16/07
Southern Illinois Environmental Managers Association	1/18/07
Industries	
Afton Chemical	4/3/07
Cerro Flow Products Co.	Declined
Conoco Phillips Wood River Refinery	3/20/07
Cooper B-Line, Inc.	3/26/07
Heidtman Steel Products, Inc.	4/2/07
Highland Machine & Screw Products Co.	3/21/07
Olin Brass	Contacted
Precoat Metals	Contacted [2]

[1] Now called the Illinois Sustainable Technology Center.
[2] This interview was scheduled, but the contact was unavailable at the scheduled time and did not reschedule.

Factors considered included sectors in which a company conducted business, size and production, volume and nature of waste production, and geographical location. During telephone or in-person interviews, the researcher reiterated and summarized responses as appropriate for the interviewee to verify the accuracy. The data collectors were responsible for transcribing the data. The effectiveness of the project quality assurance plan implementation and activities was evaluated through a self-assessment process. The assessment reviewed the actual practice of data collection and handling, data analysis, and storage. The practice was compared to the established protocol. The progress reports to ISTC reported quality assurance-related issues, including findings of the procedure evaluation and results of data quality assessments.

CHAPTER 3. RESULTS AND DISCUSSION

This project was initiated to develop a model for an environmental networking organization (ENO) that ISTC could use to achieve its goal to increase its visibility and use of its technical assistance services by industry in the St. Louis Metro-East. The accomplishments of the project included:

- the development of a database of companies in Madison and St. Clair Counties,
- the development of a database of existing regional organizations,
- a survey of companies in Madison and St. Clair Counties and a survey of the Advisory Group members,
- the evaluation of four models for the environmental networking organization, and
- the organization of two events with local partners.

Company Sectors Database

Table 8 shows the breakdown of the sectors represented in Madison and St. Clair Counties based on the data in Appendix A. Fabricated metal product manufacturing is by far the largest sector represented. Other sectors represented by at least 20 companies include chemical manufacturing, food manufacturing, machinery manufacturing, and primary metal manufacturing.

Existing Regional Organizations Database

A total of 23 existing regional organizations that are relevant to industrial pollution prevention, waste reduction, and resource conservation were identified. Each is listed in Appendix B with its location and website.

Surveys

Table 9 shows the number of surveys mailed to industry and the response rates. Due to time constraints, no forewarning or follow-up was used, so the response rate of 11% was low, as expected. However, the data were a valuable first step in the project. The data represent a similar weighting between Madison and St. Clair Counties, so bias toward one county should be minimal. There was no data regarding the size or type of company responding, so there may be bias in the data with respect to those variables. It was determined that ensuring confidentiality was more important than obtaining a higher level of data, especially as the response rate was expected to be low.

The undeliverable rate was 11% and was primarily due to expired forwarding orders. If a local forwarding address was given, then the database was corrected, but the survey was not resent due to time constraints. Facilities for which the survey was returned and for which no local forwarding address was given were deleted from the database.

Table 8. Sector breakdown by North American Industry Classification System (NAICS) code. [1]

Sector	County		Total
	Madison	St. Clair	
Beverage and Tobacco Product Manufacturing	0	1	1
Chemical Manufacturing	10	15	25
Computer and Electronic Product Manufacturing	3	3	6
Electrical Equipment, Appliance, and Component Manufacturing	3	5	8
Fabricated Metal Product Manufacturing	28	28	56
Food Manufacturing	5	21	26
Furniture and Related Product Manufacturing	0	4	4
Leather and Allied Product Manufacturing	0	2	2
Machinery Manufacturing	7	17	24
Nonmetallic Mineral Product Manufacturing	2	17	19
Paper Manufacturing	0	2	2
Petroleum and Coal Products Manufacturing	3	2	5
Plastics and Rubber Products Manufacturing	4	6	10
Primary Metal Manufacturing	16	11	27
Printing and Related Support Activities	1	2	3
Textile Product Mills	0	5	5
Transportation Equipment Manufacturing	1	8	9
Wood Product Manufacturing	0	5	5
Miscellaneous Manufacturing	2	3	5
Miscellaneous	15	8	23

[1] Some companies are in multiple sectors.

Table 9. Environmental technical assistance survey response rates.

Company Location	Number of Surveys			Percent of Surveys
	Mailed	Undeliverable	Completed	Completed [2]
Madison	125	16	13	12
St. Clair	196	19	17	10
Invalid [1]	--	--	2	--
Total	321	35	32	11

[1] Respondents presumably misread "country" for "county" and answered "USA."
[2] Percentages are based on delivered surveys (286).

An important underlying assumption was that the respondent was aware of all environmental technical assistance provided at the company and was involved in providing or choosing environmental technical assistance. Only six respondents (19%) were aware of ISTC. There were a variety of sources from which these respondents learned of ISTC (Figure 2). If the response of "online" is taken to mean the ISTC's website, then two of the six respondents learned of ISTC from its website. Half of these respondents (three) had used ISTC's services. One had a waste minimization assessment conducted, and one sought information regarding hazardous waste brokers. Reasons given for not utilizing ISTC's services were not needing them and being unsure of the services available.

Table 10 shows the interest among respondents in using ISTC's services. Respondents who were unaware of ISTC had an average interest level that was lower than respondents who were aware of ISTC. However, these respondents also gave a broader range of responses – from no interest to very interested (one respondent). Respondents who were aware of ISTC were evenly distributed between little interest, some interest, and interested. Nineteen of the respondents who were unaware of ISTC indicated at least a little interest in using ISTC's services, so overall, 78% of the respondents indicated at least a little interest in using ISTC's services.

One-quarter (25%) of the respondents had not obtained any technical assistance (Figure 3). Of these respondents, one indicated some interest in using ISTC's services, one indicated little interest, five indicated no interest, and two did not respond to this question. Of those using technical assistance, the most common source of technical assistance was a colleague or business associate, with almost half the respondents (48%) using this source. The next most common source of technical assistance was a consultant (42%). Of interest for this project is that only 23% of respondents used professional or technical organizations for obtaining technical assistance. The organizations listed by respondents are provided in Table 11. Only the Chemical Industry Council of Illinois was listed by more than one respondent; two respondents listed it. More respondents (28%) have used government or quasi-government agencies (including the IEPA, county departments of public health, Illinois Manufacturing Extension Service, and St. Louis Regional Commerce and Growth Association), with eight of the respondents (25%) using the IEPA.

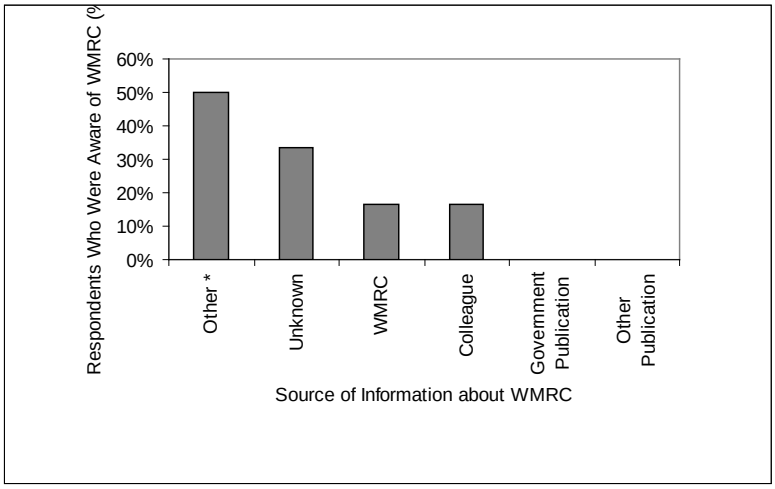

Figure 2. Sources from which respondents learned of ISTC. [1]

* "Unknown" indicates the respondent could not remember. "Other" includes SIUE, online, and the Governor's P2 Awards.

[1] Percentages add to more than 100 because multiple answers were possible from each respondent.

Table 10. Interest in using ISTC's services.

Respondent		Interest Level [1]		
Type	Number	Average	Minimum	Maximum
Aware of ISTC	6	3.0	2	4
Unaware of ISTC	26	2.6	1	5

[1] Ratings correspond to the following scale: 1 = no interest, 2 = little interest, 3 = some interest, 4 = interested, 5 = very interested.

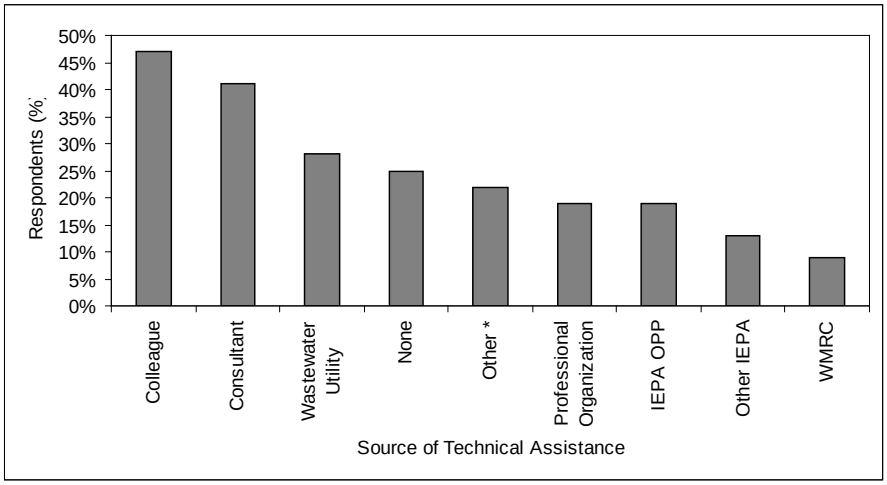

Figure 3. Sources of technical assistance. [1]

* Other includes waste management companies, a testing lab, a power company, county departments of public health, the Illinois Manufacturing Extension Service, the St. Louis Regional Commerce and Growth Association, and the Internet.

[1] Percentages add to more than 100 because multiple answers were possible from each respondent.

Table 11. Professional or technical organizations providing technical assistance.

Organization Name or Abbreviation [1]
American Petroleum Institute
Chemical Industry Council of Illinois
Illinois Environmental Regulatory Group
National Precoat Concrete Association
ACC – American Chemistry Council?
NSF – National Sanitation Foundation or National Science Foundation?
WHC

[1] Abbreviations provided by respondents were identified with organizations if possible.

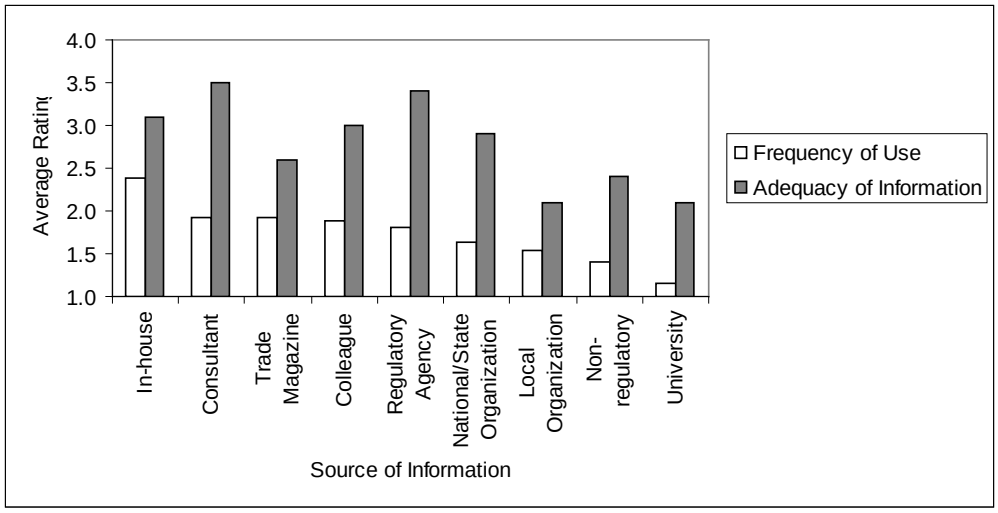

Figure 4. Frequency technical assistance sources used and adequacy of information obtained.

[1] Ratings correspond to the following scales: for frequency, 1 = never and 5 = often; for adequacy, 1 = inadequate and 5 = vital. Respondents were free to determine their terminology between these two extremes due to space constraints on the survey form; therefore, one respondent may have had a different definition for ratings 2, 3, and 4 than another.

Respondents were also asked to rate the frequency they obtain environmentally-related information for work from different sources, and the adequacy of that information (e.g., its relevance and timeliness). Some respondents rated all categories, while others rated only those, presumably, for which they were more familiar. Figure 4 shows the results. Similar to previous data, colleagues and consultants were the most frequently used sources for technical assistance. (Note that the lists of sources provided for survey Questions 8 and 9 in Appendix C, corresponding to Figures 3 and 4, were slightly different.) Of particular note for this project are the low ratings for the adequacy of information from local organizations and the slightly better ratings for national and state organizations and regulatory and non-regulatory agencies.

Table 12 shows the response to the survey of the advisory group. Despite repeated attempts to obtain input, only three advisory group members responded directly. However, the president of the Gateway Society of Hazardous Materials Managers (GSHMM) forwarded the request to the society's members, and five completed the survey. A determination was made as to whether these responses appeared to be from organizations or industry based on e-mail addresses and/or messages sent with the surveys. No determination was made as to the size of the industries. Both a small and a large industry responded from the advisory group. Although the sample size is two, they had different responses to all questions.

Respondents were asked to indicate if an area was a top three concern or simply a concern. Figure 5 presents the percentage of respondents indicating an area was a top three concern. There were no areas that an organization chose as a top concern that at least one industry did not also choose as a top concern. The most common concern was safety (75% of, or 6, respondents). The next most common concern was personnel training (50% of, or 4, respondents). There was no request for information on the type of personnel training, so this category could include topics from administrative to production to waste management. No respondents chose product quality, raw materials, or water use as a top concern.

Figure 6 indicates the percentage of respondents who noted an area was a concern but not a top three concern. There were no areas that an organization chose as a top concern that at least one industry did not also choose as a top concern. No respondents chose safety as a concern only. Therefore, safety is either a top concern or not a concern for the respondents. Wastewater generation and disposal and water use were the most commonly cited areas of concern (62.5% of, or 5, respondents).

Figure 7 shows the percentage of respondents who indicated that a particular resource was needed to address a top concern. A majority of the respondents (75%, or 6) wanted information about techniques or technologies or about organizations that provide assistance. Half the respondents wanted external funding, and half wanted third party assistance implementing projects. Of the latter, two respondents were organizations and two were industries. Only the respondents from the organizations chose third party review of operations.

Table 12. Advisory group survey response.

Respondent Type	Number of Responses		
	Advisory Group	GSHMM Member	Total
Organization	1	1	2
Industry	2	4	6
Total	3	5	8

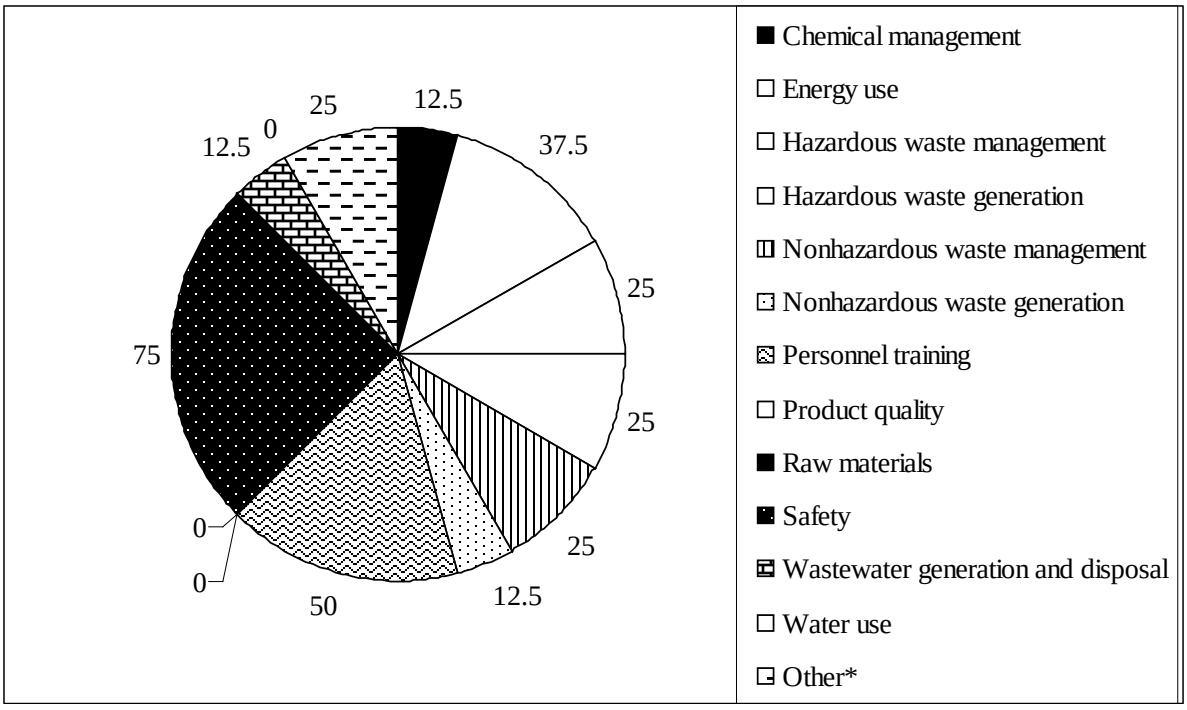

Figure 5. Percentage of respondents choosing an area as a top three concern.
* Two respondents added security issues and one of the two also added sustainability issues.

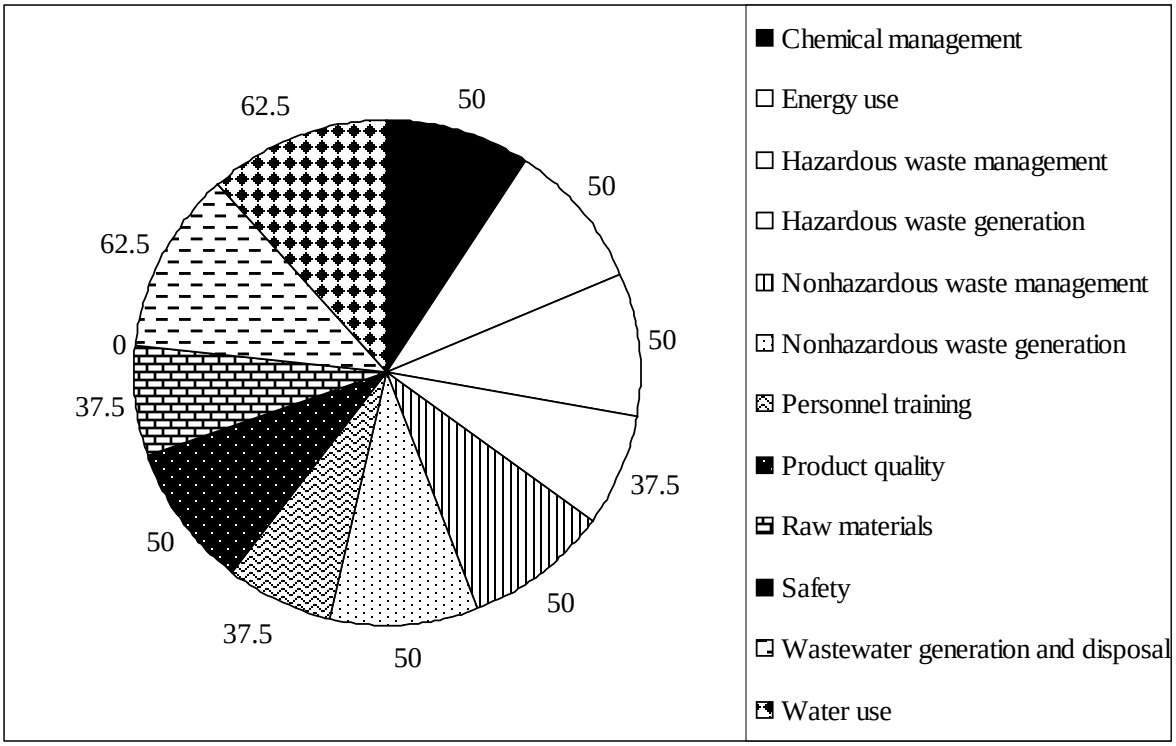

Figure 6. Percentage of respondents choosing an area as a concern.

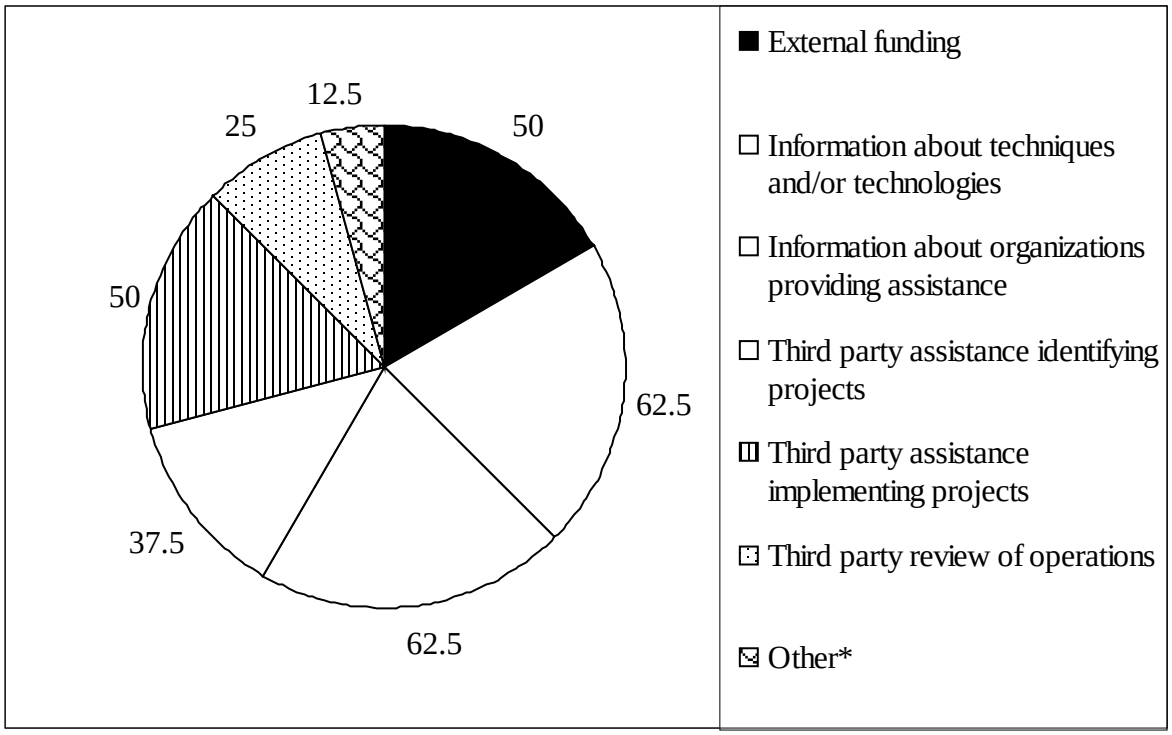

Figure 7. Percentage of respondents' needing resource to address top concerns.
* A large industry reported needing in-house engineering.

Almost all (87.5%, or 7) of the respondents were interested in regular networking opportunities with others in their types of industry (Figure 8), although none of the respondents ranked it as a first choice. The next highest ranking (62.5%, or 5 respondents) was for a peer relationship with a similar company, which is a similar concept and was chosen by the same respondents. Three respondents ranked this option first. The most frequent first choices (37.5%, or 3 respondents) were a peer relationship with a similar company and onsite assessments. Half the respondents ranked in their top three choices regular central presentations on topics relevant to the first two survey questions. The remaining options were less popular. Table 13 shows the average ranking for each option.

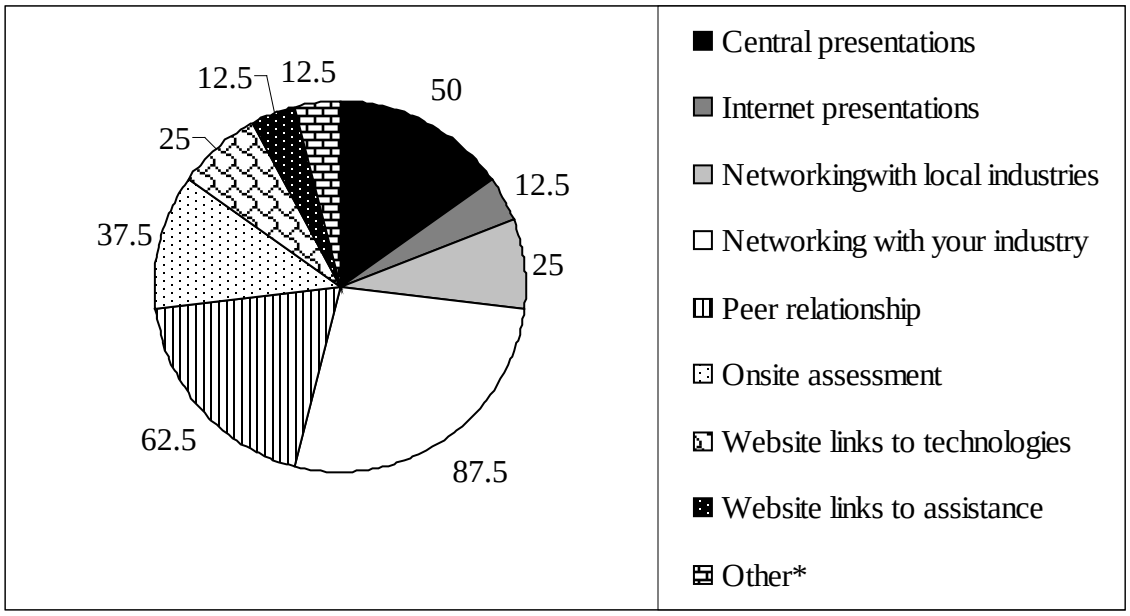

Figure 8. Percentage of respondents ranking technical assistant option as first, second, or third choice.

* Other includes grant and funding opportunities.

Table 13. Average rankings of technical assistance options.

Option	Average Ranking [1]
Regular networking opportunities with others in your type of industry	3.0
A peer relationship with a similar company	3.1
Onsite assessments	3.4
Regular central presentations on topics relevant to Questions 1 and 2	4.0
Regular Internet-based presentations on topics relevant to Questions 1 and 2	4.8
Regular networking opportunities with others in local industries	5.3
Website with links to information about techniques and technologies	5.6
Website with links to organizations that provide assistance	6.3
Other [2]	2.0

[1] Rankings ranged from 1 to 9, with lower numbers indicating higher rankings.

[2] One respondent provided an "other" option, which was grant and funding opportunities.

Table 14. Potential models of an environmental networking organization (ENO).

Model	Description
New traditional ENO	Conventional professional organization
New web-based ENO	Virtual organization with interaction primarily online
Partnership-based ENO	Collaboration between ISTC and one or more existing organizations
Outsourced ENO	Existing organization that is capable and willing to fulfill the role of an ENO

Table 15. Scoring rubric.

Parameter	ENO Model [1]			
	New Traditional	New Web-based	Partnership-based	Outsourced
1. Location/Office	-1	-1	1	1
2. Membership/Staff	-1	-1	1	1
3. Start-up Costs	-1	-1	1	-1
4. Operational Costs	-1	-1	1	-1
5. Funding/Revenues	-1	-1	0	-1
6. Industry endorsement/support	-1	0	0	0
7. Organization endorsement/support	-1	-1	1	-1
8. Government agencies endorsement/support	0	0	0	0
Conclusion – Feasibility (ranking)	*-7*	*-6*	*5*	*-2*
1. Services the proposed ENO can provide	1	1	1	1
2. The gap the ENO can fill in	0	1	1	0
3. The value of ENO services to the industries	0	1	0	0
Conclusion – Usefulness (ranking)	*1*	*3*	*2*	*1*

[1] Scores of -1, 0, or 1 indicate whether it would be a negative, neutral, or positive aspect, respectively.

Evaluation of Models for the ENO

Table 14 shows the four models of an environmental networking organization studied in the project. Table 15 shows the researchers' evaluation of each model based on data from the literature and the Internet. A summary of the results of the interviews discussing each model follow.

New Traditional ENO

Few comments were obtained regarding the new traditional ENO. Dan Marsch, ISTC Peoria Office, related his experience with a Peoria-area organization, Tri-County Green Matters. This organization was formed from several sponsoring government agencies as well as local businesses. It was active for several years, but after key personnel moved and left the organization, it has become inactive. A key factor in its subsequent inactivity has been the administrative time required to keep the group together. Mr. Marsch noted that he decided he could more effectively assist industry through means other than the organization; therefore, he decided not to become the administrative lead, i.e., champion, for the organization. Mike Springman, ISTC Brighton Office, faced a similar situation assisting with beginning a Metro-East organization that would recognize local P2 efforts. He noted that there was little interest

among industry in the concept for the organization, and the efforts were eventually dropped. Likewise, based on the experience of the project team with professional and technical organizations and efforts to arrange face-to-face meetings for this project (including with the project advisory group), time and financial resource limitations of the target audience will remain the primary constraints to obtaining participation in a new organization.

New Web-based ENO

Based on interviews with organization representatives, industry contacts, and Mike Springman, companies – especially smaller companies – make extensive use of the Internet to conduct research and find information. In fact, Brad Korte, Vice-President for Engineering at Highland Machine and Screw Products, Co., stated that he was purging books and relying on the Internet instead. While not a substitute for onsite technical assistance, the Internet can help identify potential solutions once a problem or issue is known. When specifically asked, interviewees agreed that a portal, i.e., one site that led to relevant and trustworthy information, would be useful. Mark Biel, Executive Director of the Chemical Industry Council of Illinois (CICI), offered to publicize an ISTC portal to his members and link to the site. CICI does not currently offer such a service. He noted that there are many good ideas and solutions, including from ISTC, already available. One specific site that industry was asked about their use of was the USEPA's P2Rx website, which contains an extensive database of P2 projects. None of the industrial contacts interviewed had used or were aware of the site.

Partnership-based ENO

Three professional and trade organizations with a presence in the Metro-East provided input on the models, in particular their interest in partnering with ISTC. The Air and Waste Management Association – Greater St. Louis Section (AWMA) – and the GSHMM offer the best match for ISTC. Table 16 compares the organizations. In general, the benefits cited for ISTC were publicity and access to membership through newsletters, listserves, and meetings. All the organizations contacted have experience co-sponsoring activities. For example, CICI and AWMA have partnered with GSHMM in the recent past. Only SIEMA had partnered with ISTC prior to this project, although Mike Springman had not seen an increase in the use of ISTC as a result. Joe Darmody, Chair of AWMA, raised the concern that ISTC avoid "selling" services at co-sponsored meetings to avoid conflicts with consultant members.

Table 16. Professional and trade organizations.

Parameter	Organization [1]			
	AWMA	CICI	GSHMM	SIEMA
Membership				
Number	~200	~200 companies ~30 consultants	~170 total ~50 in Illinois	No data
Type	• 10 – 20% academic and government • 40 – 45% industry • 40 – 45% consultants	• Primarily chemical and oil companies	• 11% disposal • 19% various [2] • 33% industry • 36% consultants	• Environmental compliance and safety managers • Consultants • Diverse industry
Company size	Diverse	Most larger	Diverse	Diverse
Metro-East presence	Limited – primarily active in St. Louis	Limited – primarily active in northern Illinois	Moderate	Moderate – but most members farther south, extends through rest of 618 area code
Services offered	• Education through meetings	• Lobbying • Advocacy • Education • Some specific assistance directly to companies	• Education through meetings	• Education through tours, meetings, and an annual conference
Perceived benefit(s) to partnering with ISTC	• Serve Illinois members more • Increase Illinois membership • Publicity • Increase meeting attendance	• Increase membership of smaller companies • Co-sponsor workshops	• Serve Illinois members more • Increase Illinois membership • Publicity • Increase meeting attendance	• Serve members more

[1] Organization abbreviations stand for: AWMA – Air and Waste Management Association – Greater St. Louis Section, CICI – Chemical Industry Council of Illinois, GSHMM – Gateway Society of Hazardous Materials Managers, and SIEMA – Southern Illinois Environmental Managers Association.

[2] This category includes law, laboratory services, and sales.

In addition to professional and trade organizations, three ISTC regional offices and five other state agencies were interviewed regarding partnering experiences and their interactions with ISTC. Most of the agencies partner to some extent with other agencies and with professional organizations. Partnerships with other agencies are typically to provide complementary services (Table 17). Partnerships with professional organizations are typically associated with conferences or workshops. The ISTC Chicago office also partners with publicly-owned treatment works (POTWs) and municipalities to identify companies likely in need of technical assistance and with small business development centers located at educational institutions to include P2 in the initial stages of business development. The advantage in the Chicago area is a more limited number of POTWs than in the Metro-East with which to interact. However, the Metro-East

houses the IEPA's water and wastewater operator training center (the SIUE Environmental Resources Training Center), which may be a way to inform future operators of ISTC's' services. SIUE also houses two business development centers and the Southwest Illinois Advanced Manufacturing Center (Table 10).

Dan Marsch, with the ISTC Peoria Office, indicated that companies in Quincy are more open and cooperative and, thus, responsive to ISTC than companies in the Metro-East. He believes that the difference may be explained by their relative isolation, which has led to little state involvement, including from regulatory agencies. Supporting this explanation is the belief of Brad Korte, with Highland Machine, that Highland industry is in general afraid of anything connected to the State because of past regulatory aggressiveness, in particular on the part of the Occupational Safety and Health Administration. This hesitancy may even extend to attending workshops co-sponsored by state agencies.

Table 17. Roles of government organizations.

Parameter	Agency [1]						
	ISTC	SIAM Center	IEPA OPP	DCEO IMEC	DCEP SBEAP	DCEO EC	DCEO SBDC
Company size targeted	≤200 – 300 employees	Small to medium	All but primarily small to medium	All	≤100	Single entrepreneur to small	Small
Focus of services	•Identify P2 options and solutions •Conduct pilot projects	•Prototype design •Hardware aspects of product development	•Identify quick P2 options and solutions •Some in-depth research	Improve production efficiency	Provide regulatory information and education, especially regarding air issues	Start-up or expansion of higher risk/bigger payoff ventures	Business planning and management
Local staff	1 – 2	2	1	2	0	1	1

[1] Abbreviations stand for: SIAM – Southwest Illinois Advanced Manufacturing, IEPA OPP – Illinois Environmental Protection Agency Office of Pollution Prevention, DCEO – Department of Commerce and Economic Opportunity, IMEC – Illinois Manufacturing Extension Center, SBEAP – Small Business Environmental Assistance Program, EC – Entrepreneurship Center, SBDC – Small Business Development Center.

Outsourced ENO

This model is based on contracting with an organization or company to provide professional management and administrative services to establish and maintain an ENO. Kim Robinson, the Executive Director of Frontline Public Strategies, Inc., the association management company (AMC) under contract with the Illinois Society of Professional Engineers (ISPE), was interviewed. There are three organizational set-ups used by AMCs – by program area or function (e.g., publications and meeting planning), by client, and a hybrid of the two. She stated that the primary benefits of hiring an AMC are (1) to share overhead with other groups (e.g., not paying for staff during downtimes) and (2) to benefit from the experience of other groups (e.g., the AMC extrapolating recruitment strategies and workshop scheduling to other clients). She was

unaware of any rule of thumb for which organizations would benefit most from using an AMC. The main trade association for AMCs is the AMC Institute. Its website includes a request for proposals that can be submitted or used as a template by organizations seeking an AMC. An initial contract is typically one year with a one year renewal option; subsequent contracts are typically three years. Her company leads the daily operations and government relation efforts for ISPE; it also organizes the annual meeting that includes continuing education seminars as well as an annual continuing education bootcamp, which is an intensive series of seminars over several days in which professional engineers can earn all their required professional development hours for licensure renewal. Dr. Morgan, a member of ISPE, has heard only positive comments from ISPE officers regarding the management of ISPE by the AMC.

In contrast to a professional AMC, an existing organization could be contracted with to provide services. Mark Biel, the Executive Director of the Chemical Industry Council of Illinois (CICI), stated that the CICI would be interested in such a role, but they have limited personnel and he was unsure his organization was the best to reach a broad audience due to their focus on chemical and oil companies. Joe Darmody, Chair of the AWMA, stated that his organization is run by volunteers, which limits their capabilities. He noted that the outsourcing option would provide a marketing arm for ISTC, which is an area with which ISTC has difficulty.

The primary disadvantage to an outsourced ENO is the additional funding that would be required. This option would likely be more economically feasible for ISTC if it were implemented on a state-wide, versus regional, scale.

Partnership Events

Based on the analysis of the ENO models, the project team recommended ISTC pursue partnering with the AWMA and the Gateway GSHMM. On July 11, 2007, the project team and Mr. Tim Lindsey, Mr. Mike Springman, and Mr. Dan Marsch of ISTC met with Mr. Joe Darmody, President of the AWMA to discuss potential collaborations. A representative from the GSHMM was unable to attend, but Ms. Jackie Robb, President, was e-mailed a report of the meeting subsequently and responded that they were interested.

Event 1

The first event was a half-day workshop, “CommonCents: Improving your bottom line through improved environmental, health, and safety practices – Practical Strategies for a ‘Greener’ Business.” It was held at SIUE on March 13, 2008. After discussion with ISTC, AWMA, and GSHMM, the topics and speakers were finalized. The program included seven presenters representing five organizations (ISTC, OSHA, SIUE, SIAM, and IMEC) as shown in Appendix E. Two organizations (ISTC and TekLab, Inc.) set up informational exhibits. ISTC brochures were also distributed to attendees. A wrap-up meeting between ISTC, SIUE, and GSHMM was held immediately following the workshop.

The workshop was advertised as shown in Table 18. Several companies expressed an interest in attending but had previous commitments so they were unable to attend; they asked to be notified

of upcoming workshops, however. Eight organizations were sent an e-mail notice to distribute to their members through e-mail notification and/or to include in their newsletters and/or websites. The organizations were also sent a follow-up reminder.

Table 19 shows the breakdown of the 41 participants. The majority of the attendees (68%) were GSHMM members; the likely reason is because the workshop was inadvertently scheduled on the same day as the GSHMM's regular monthly meeting. Two attendees were members of only AWMA; five others were members of both organizations. This result indicated a major advantage to scheduling events in conjunction with regular GSHMM or AWMA meetings. Table 20 lists the responses from 15 participants about how they learned about the workshop. Unsurprisingly, the majority heard from GSHMM. Table 21 indicates the participants were from a range of businesses. Over half (56%) of the participants were from Illinois.

Table 18. Advertising for the first event.

Faxes to 242 businesses in database from Phase 1
Personal e-mail invitations to advisory group and other individuals
Personal phone call and faxes to select survey companies
E-mail notices to organizations for distribution:
Air and Waste Management Association – Greater St. Louis Section
Chemical Industry Council of Illinois
Engineers' Club of St. Louis
Gateway Chapter of the Association of Professional Energy Consultants
Gateway Society of Hazardous Materials Managers
St. Louis Section of the American Society of Civil Engineers
St. Clair Chapter of the Illinois Society of Professional Engineers
Southern Illinois Environmental Managers Association

Table 19. Workshop participants.

Type	Number
Attendees	31
Presenters	7
Organizers	3
Total Participants	41

Table 20. Method participants learned about the workshop.

Method	Use	
	Number	Percent
GSHMM	9	60
Colleague	2	13
Sponsor	1	7
Organization	1	7
E-mail	1	7
SIUE Civil Engineering Department website	1	7

Table 21. Workshop participants by type of business.

Organization	Participants	
	Number	Percent
Industry	11	27
Other or Unknown	9	22
Consulting	9	22
SIUE	7	17
ISTC	5	12
Total[1]	41	99

[1] The percentage is less than 100 due to rounding.

Evaluation forms were turned in by 19 (61%) of the attendees. Tables 22 through 25 present the results. Some of the forms were partially completed; therefore, not all data discussed are based on the same number of responses. The results indicate that the workshop was successful. When asked to rate the workshop overall, 33% (6 of 18) rated it as excellent while 56% (10 of 18) rated it as good. Only 11% (2 of 18) rated it as satisfactory and none rated it as fair or poor.

Table 22 shows that the majority of respondents strongly agreed or agreed that the presentations were effective and useful to their work. In all but the first presentation, the majority of respondents also strongly agreed or agreed that they wanted to know more about the topic. In the first presentation, slightly less than half (approximately 48%) strongly agreed or agreed while approximately 53% were neutral. Few respondents marked disagree or strongly disagree for any question. One respondent strongly disagreed that the materials in Case Study 2 were useful for his or her work. And one respondent marked strongly disagreed on all questions pertaining to the waste-to-profit network presentation.

Table 22. Evaluation questions related to each presentation.

Evaluation Question by Presentation	Rating (Number, %)			
	Strongly Agree	Agree	Neutral	Total
Safety Regulatory Update Plus				
The materials were useful to my work	4 21%	9 47%	6 32%	19
I want to know more on this topic	2 11%	7 37%	10 53%	19
Practical Approaches to Green Business				
The materials were useful to my work	8 44%	9 50%	1 6%	18
I want to know more on this topic	7 39%	11 61%	0 0%	18
Case Study 1: Simple and Cost Effective Energy Efficiency				
The materials were useful to my work	5 29%	9 53%	3 18%	17
I want to know more on this topic	5 29%	9 53%	3 18%	17
Case Study 2: Local Industry Waste Reduction				
The materials were useful to my work	1 6%	8 50%	6 38%	16
I want to know more on this topic	1 6%	8 50%	7 44%	16
Case Study 3: Water Reduction and Energy Conservation				
The materials were useful to my work	4 24%	13 76%	0 0%	17
I want to know more on this topic	4 25%	12 75%	0 0%	16
Waste-to-Profit Network				
The materials were useful to my work	0 0%	10 67%	4 27%	15
I want to know more on this topic	1 7%	8 53%	5 33%	15

Table 23. Evaluation questions related to use of provider services.

Evaluation Question	Rating (Number, %)					Total
	Very Likely	Likely	Neutral	Unlikely	Very Unlikely	
How likely will you use ISTC services in the future?	0 0%	7 37%	9 47%	2 11%	1 5%	19
How likely will you use SIAM services in the future?	0 0%	5 26%	10 53%	2 11%	2 11%	19
How likely will you use IMEC services in the future?	0 0%	3 17%	11 61%	2 11%	2 11%	18

Table 24. Additional feedback from respondents.

Verbatim Comments
Hope future events would have less about the organizations and more about results
Need full-day workshop with more in-depth presentations
Need caffeine at break
Very good presentations and info to be useful on many fronts
Well put together

Table 25. Feedback on future topics.

Verbatim Comments
EPA wastewise program, CAIR – NOx set aside
More "war stories" or examples
Waste reduction/management, agricultural applications, run-off control
Greenhouse gas strategies
Green building envelope, exterior site, green roofs, HVAC, etc
Carbon trading; credits/funding mechanisms
Sustainability audits
How to analyze waste and energy streams

Table 23 shows the respondents' likely use in the future of services provided by ISTC, SIAM, and IMEC. While none marked very likely, over one-third marked that they would likely use ISTC's services. Approximately half were neutral, while only 16% were unlikely or very unlikely.

Table 24 includes verbatim comments provided by respondents. Some are considerations for future workshops (along with Table 25) while others are compliments. Dr. Morgan also received an e-mail following the workshop in which a participant wrote, "I enjoyed the seminar yesterday and appreciate the effort your group put into it. I look forward to future seminars."

The wrap-up meeting held immediately following the workshop was attended by the ISTC participants, representatives of the GSHMM, and Drs. Morgan and Zhou. Due to a miscommunication with the replacement representative for the AWMA, he did not attend the follow-up meeting. The GSHMM representatives provided the following comments.

- Events on their meeting day, even if a workshop, are preferable to a different day.
- They are interested in participating in an annual workshop with a different theme each year.
- Their membership meetings held at lunch have better attendance than those held at breakfast. In fact, they quit having breakfast meetings.

Event 2

The original plan was to host a second workshop in May, 2 months after the first event. However, it was decided that May was too soon and that a meeting in the fall would be a preferable option. In the summer, GSHMM and AWMA were contacted regarding their interest in participating in a fall workshop. GSHMM had two concerns. One was that the turnout of their members was low at the first event, and the other was that the length should be shortened. They suggested holding the event closer to St. Louis to make it easier for members to attend and to have two presentations, one during lunch. Mr. Joe Darmody, Past President of AWMA, responded that the AWMA Board was "willing to help promote this event." They did not want it to replace their regular meeting, however.

Based on these responses, the second event was planned to coincide with the GSHMM's November meeting (Appendix F). The topic of energy management was chosen for the theme due to its likely broad applicability and interest to companies. Two speakers were obtained, one based on the recommendation of Mr. Joe Darmody of the AWMA and one based on the recommendation of ISTC. The event was held at the Gateway Center in Collinsville, Illinois, which is conveniently located off I-70. Advertising for the event is shown in Table 26. Rather than having an exhibit, ISTC brochures were distributed to attendees.

There were 73 participants at the event. Table 27 shows the breakdown of the participants. There were 13 no-shows and 9 walk-ins. The attendees represented 10 industrial companies, eight consulting companies, and seven service companies. Dan Marsch, Mike Springman, and Nancy Holm with ISTC attended. Mr. Marsch said a few words about ISTC and introduced the first speaker. Table 28 includes comments received afterwards from the GSHMM. There was a problem with an inadequate amount of food, which may have occurred because the venue was hosting multiple large lunch events simultaneously.

Table 26. Advertising for the second event.

Personal e-mail invitations to advisory group and select companies
E-mail invitations to attendees at the first event
E-mail notices to organizations for distribution:
Air and Waste Management Association – Greater St. Louis Section
Chemical Industry Council of Illinois
Engineers' Club of St. Louis
Gateway Society of Hazardous Materials Managers
Illinois Manufacturing Extension Center
Southwest Illinois Advanced Manufacturing Center
St. Louis Section of the American Society of Civil Engineers
St. Clair Chapter of the Illinois Society of Professional Engineers
Southern Illinois Environmental Managers Association

Table 27. Workshop participants.

Type	Number
Attendees	66
Presenters	2
SIUE and ISTC	5
Total Participants	73

Table 28. Comments from GSHMM Board members regarding Event 2.

Verbatim Comments
Speakers were interesting.
The facility was nice and easy to get to.
Space was a little small – didn't plan for enough people.
Good-sized crowd.
I liked having the speaker on a raised level – made it easier to see when there were so many people.
Incorrect signage was a bad start.
I don't know if there were walk-ins that caused the headcount to be off or if they counted on that number, but it seemed a little cozy in there. Lunch was a little disappointing.
The room was a little small and not everyone had the same lunch.
Thanks again for the joint efforts.

CHAPTER 4. CONCLUSIONS AND RECOMMENDATIONS

It is important for manufacturers to decrease their operating costs to stay competitive. Pollution prevention (P2) and waste reduction can be effective means for a manufacturing company to achieve cost reduction. The aim of ISTC is to assist manufacturers to meet this goal by providing information about techniques and technologies, technical assistance to identify and implement projects, and onsite assistance, which was found in the project to be preferred over simply providing information on the Internet. However, significant barriers remain that hinder ISTC's ability to assist manufacturers in the Metro-East, including reluctance on the part of some companies to trust a state agency, but more importantly, the reluctance of many personnel to take on the role of "champion" in their companies. This reluctance is well documented in pollution prevention literature and is not unique to the Metro-East. In addition, it is challenging to promote P2 and technical assistance initiatives to small- and medium-sized companies when the companies belong to diverse industries, which is the case in the St. Louis Metro-East. This study developed a model for an environmental networking organization (ENO) that ISTC may use to increase its visibility and use of ISTC's technical assistance services by industry in the region. The information provided by this project should enable ISTC to engage more frequently and more productively with industry in the Metro-East St. Louis region, although it will be a long-term commitment with a payoff in the future.

Four ENO models were evaluated – a new traditional ENO, a new web-based ENO, a partnership-based ENO, and an outsourced ENO. Input was obtained from government organizations, professional and trade organizations, and industry. This study found that a partnership-based ENO offers the most feasible option at this time. A new traditional ENO would require an extensive time commitment on the part of the organizers plus would require an additional time commitment from industry to participate. Even if a new ENO is established, to sustain its operation, it is essential to have a champion plus a core team, which can be difficult to find. Therefore, building a new traditional ENO is not practical at this time.

Because Metro-East industry personnel are increasingly using the Internet to obtain information, there may be some benefit to both industry and ISTC in providing an Internet portal to relevant websites. It could provide increased visibility for ISTC and recognition of ISTC as an impartial resource. However, the existence of the website would need to be widely distributed and would incur a cost to ISTC to develop and maintain. In addition, there is already a national P2 information network, which was developed and supported with dedicated professional organizations and government agencies (e.g., USEPA). There is no need for ISTC to repeat such an effort. Therefore, a new web-based ENO is unnecessary.

An outsourced ENO would mean that the responsibility to develop and implement ISTC programs is passed on to an entity such as a professional service company or an existing organization. Payments to such an entity would be needed. Given the current economic conditions and financial challenges, an outsourced ENO is not a viable option.

A partnership-based ENO offers the most promising solution. Such a model would minimize the cost and time commitment for ISTC and industry but provide benefits to each. ISTC has

experience partnering with other organizations. This study identified several professional and government organizations in the St. Louis Metro-East that are interested in partnering with ISTC. The benefits for ISTC include access to organizations' members and wider exposure. In addition to direct engagement with members, the indirect exposure from word-of-mouth to their colleagues and clients will benefit ISTC. The benefits for professional organizations are primarily programming assistance and increased exposure in Illinois. Additional benefits are serving smaller members more, increasing Illinois membership, and increasing meeting attendance. The benefits for government organizations are programming assistance and cross-marketing.

Although partnering between ISTC and other trade or professional organizations has proven to be successful in the Chicago region, this study identified special challenges that ISTC faces in the St. Louis Metro-East. The diversity of industry in the Metro-East results in a lack of a critical mass of any one industry, requiring that topics of potential broader interest be explored in meetings. However, these types of topics are often then too general for a particular industry or company. There are also many small- to medium-sized companies that lack expertise to consider pollution prevention possibilities and/or lack personnel to devote time to exploring possibilities. On the other end of the spectrum are the large companies, some of which assume they have explored all possibilities that ISTC could suggest. In addition, the proximity of Madison and St. Clair County to St. Louis results in most organizations having members in Missouri as well as Illinois. Some organizations have primarily Missouri members. The latter point drives the need to locate partnering events along the I-64 and I-70 corridors so that they are convenient for all the members of an organization. As a rule of thumb, Illinoisans will typically travel farther into Missouri than Missourians will travel into Illinois. There are currently venues in the towns closest to St. Louis that offer adequate space, but they are limited.

Based on the results of the project, it is recommended that ISTC partner with Metro-East organizations to increase visibility and access industry. Initial discussions with organizations indicated an interest in partnering to hold larger events, such as workshops, but feedback received after the initial workshop indicated less interest in these types of events. Therefore, the focus of ISTC should be on providing speakers for professional organizations' regular meetings. Organizations' members are more likely to attend a regular meeting than an extra event, and it can be difficult to schedule an event to avoid conflicts with ISTC's and other organizations' activities. Focusing on providing speakers also minimizes the costs for ISTC and builds rapport with the organizations, which often are looking for speakers and are run by volunteers who have limited time available to find good speakers.

ISTC should develop a list of potential speakers and topics and provide it to the local organizations, in particular the GSHMM and the AWMA. The key is to offer a variety of relevant topics, some broad and some narrow, with engaging, informative speakers. In addition to technical topics, ISTC should consider safety and personnel training. ISTC personnel should be on the list, but the list could be more extensive. It would be advantageous to include industry personnel who have benefited from working with ISTC, in particular from industries similar to those in the Metro-East. It is important that ISTC be able to provide good speakers to leave an overall positive impression with audiences and to ensure that ISTC is considered a reliable source of technical assistance.

ISTC personnel should attend organizations' meetings when possible to maintain a presence with the members. Participation within select organizations can also lead to greater positive visibility.

ISTC should also maintain and possibly increase their cooperation with government agencies in providing outreach in the Metro-East. Again, these activities would provide greater visibility with a reduced effort.

These efforts will need to be sustained to show results through increased use of ISTC's services, including the use of ISTC's online resources. ISTC must compete with multiple demands on industry personnel's time and attention. Therefore, a long-term commitment will be needed to ensure they think of ISTC when contemplating a problem or considering alternatives.

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APPENDIX A.

DATABASE OF COMPANIES IN MADISON AND ST. CLAIR COUNTIES

Table A-1. Companies in Madison County.

	Company – Madison County	City	Employs	Sales	NAICS	SIC	AIRS	PCS	RCRA	TRI
1	A D M Packaged Oils	Granite City	60	$25M-$100M		2079	Minor		CESQG-94	
2	A Z Welding	Bethalto	8		332710	3599				
3	Abbott Machine Co.	Alton	22	$1M-$5M	333512	6549;6599			CESQG-98	
4	Aero Aviation Co., Inc.	Granite City	12	$1M-$5M	336412	3724	Minor		SQG-87	
5	Air Liquide America Corp.	Roxana	10	$1M-$5M	325120	2813	Minor	Non-Maj		1992
6	Air Products & Chemicals, Inc.	Granite City	58							
7	Air Products & Chemicals, Inc.	Granite City	25							
8	Allwaste Container Services Inc	Granite City					Minor		LQG-04	
9	Altec Manufacturing & Engineering Co.	East Alton	2	< $500,000	332710	3599				
10	Alton Sheet Metal Corp	Alton	18	$1.2M	332322	3444				
11	Alton Steel Inc.	Alton	170							
12	Amcol International Corp.	Granite City	23				AS Minor		CESQG-94	2006
13	Arnette Pattern Co., Inc.	Granite City	25	$3M	332997	3543;3599				
14	ASF-Keystone Inc.	Granite City	700				Major		LQG-04	2006
15	Atlantic Richfield Company	Wood River								
16	B O C Gases	Hartford	50		325120	2813	Minor			
17	Basler Electric Co.	Highland	900	$100M		3612;3625;3629;3621	Minor		LQG-85	
18	Bierbaum Steel Co., Inc.	Godfrey	11	$1M-$5M	331111	3312		Non-Maj		
19	Blast Products, Inc.	Madison	4	< $500,000	325611	2841				
20	BP Pipelines, Inc.	Wood River							SQG-03	
21	Cabinet Solutions	Alton								
22	Center Terminal Co.	Hartford	3				Minor		SQG-04	
23	Centerpoint Energy	St. Jacob	8				Major-06	Non-Maj	SQG-98	
24	Challenge Unlimited	Alton								
25	Chemetco Inc.	Hartford								
26	CKS Metal Corp.	Edwardsville	2	< $500,000	331492	3341				
27	ConAgra Foods Inc.	Alton	120							
28	ConAgra Foods Inc.	Alton	120							

Table A-1 continued

	Company – Madison County	City	Employs	Sales	NAICS	SIC	AIRS	PCS	RCRA	TRI
29	ConocoPhillips Co	Roxana	680				Major	Major	LQG-04	2005
30	Cooper B-Line, Inc.	Highland	600	> $200M		3499;3429;3452;3444	Minor	Non-Maj	SQG-00	2005
31	Cooper B-Line, Inc.	Troy	100	$10M-$15M	332322	3443	Minor	Non-Maj	CESQG-00	2005
32	Custom Fabrications and Coatings	Granite City							SQG-03	
33	Custom Racks	Elsah								
34	D. L. Austin Steel Supply Corp.	Collinsville	6	$2M	332999	3499;3496;3441;3334				
35	Diamond Plating Co. Inc.	Madison	35	$1M-$5M	332813	3471	Minor		LQG-04	2006
36	Domestic & Commercial Sheet Metal Inc.	Granite City	7	$800,000	332322	3444				
37	Douglas Sheet Metal Co.	Granite City	3	< $500,000	332322	3444				
38	Dugan Tool & Die, Inc.	Cottage Hills	19	$1M-$5M	333514	3544;3599			CESQG-97	
39	Eagle Tubular Products, Inc.	Alton	18				Minor		CESQG	
40	Edwardsville Machine & Welding Co., Inc.	Edwardsville	10	$500,000 - $1M	332710	3599				
41	Ehrhardt Tool & Machine Co.	Granite City	90		333514	3544			SQG-97	
42	Elk Heating & Sheet Metal, Inc.	Wood River	12	$500,000-$1M	332322	3444				
43	Explorer Pipeline Co.	Hartford	15				Major	Non-Maj	LQG	
44	Feralloy Corp.	Granite City	53	$55M		3316			SQG-97	
45	Foresight, Inc.	Troy	1	$1M-$2.5M	325612	2992				
46	G & M Industries, Inc.	Collinsville	5	$500,000-$1M	339112	3841				
47	G M Scrap Metal	Cottage Hills	5	$500,000-$1M	331492	3341				
48	Gateway International Motorsports	Madison							LQG-04	
49	Gateway Laser Technology, Inc.	Alton	2	< $500,000	332116	3599			Air Minor	
50	Gemini Industries, Inc.	Roxana	75						SQG-03	
51	Granite City Pickling & Warehousing Inc	Granite City	35		332813	3471	Minor			2006
52	Grantform Meats	Highland	5	$1M-$2.5M	311612	2011				
53	Hanley Industries, Inc.	Alton	45	$1M-$2M	325920	3483	Minor		CESQG-98	

Table A-1 continued

	Company – Madison County	City	Employs	Sales	NAICS	SIC	AIRS	PCS	RCRA	TRI
54	Hartford Wood River Terminal LLC	Alton	29						SQG-05	
55	Heidtman Steel Products, Inc.	Granite City	100		331221	3312	Minor		LQG-84	2006
56	Highland Machine & Screw Products Co.	Highland	140	$5M-$10M	332322	3444;3599	Minor		CESQG-95	
57	Highland Spring & Specialty	Highland	10	$1M	332612	3493				
58	Holshouser Machine & Tool, Inc.	Granite City	7	< $500,000	332710	3599;3499				
59	Hopcroft Electric, Inc	Glen Carbon	7	< $500,001	335312	3621				
60	Industrial Pyrometer and Supply Company	Alton	5	< $500,002	334519	3825				
61	Jakel, Inc.	Highland	300		335312	3621			SQG-89	
62	JM Innovations, Inc.	Edwardsville	5	$500,000 - $1M	333111	3523				
63	K & K Metal Works, Inc.	Granite City	7	$500,000-$1M	332322	3444				
64	Ketcham Welding & Manufacturing	Edwardsville	3		332710	3598				
65	Kienstra, Inc.	Edwardsville	14	$5M - $10M	327320	3273	Minor			
66	Korte Meat Processing, Inc.	Highland	9		311612	2011				
67	Kraft Foods Global, Inc.	Granite City	300	$25M-$100M	311930	2033;2087	Minor	Non-Maj	CESQG-02	
68	Lenhardt Tool and Die Company, Inc.	Alton	60	$1M-$5M	333514	3544;3599		Non-Maj	SQG-04	
69	Lizotte Sheet Metal, Inc.	Edwardsville	10	$500,000-$1M	332322	3444				
70	M O W Printing, Inc.	Collinsville	11						SQG	
71	M&P Machining, LLC	Edwardsville	6	< $500,000	333294	3556;3599				
72	Magnesium Elektron North America, Inc.	Madison	49	$25M-$100M	331319	3354;3353;3356	AS Minor		SQG-04	2006
73	Mandis Dental Laboratory	Collinsville	2	< $500,000	339116	3843				
74	Medhurst, Inc.	Alton	4	$500,000	332710	3599				
75	Metalico-Granite City, Inc.	Granite City	100		331491	3356				
76	Metals U. S. A., Inc.	Madison	65	$49M	331111	3316				
77	National Vinegar Co.	Alton	16	$7M	311941	2099	Minor			
78	Newssor Manufacturing, Inc.	East Alton	9	< $500,000		3599				
79	Olin Corp.	East Alton	3500	> $850M		3351	Major	Major	LQG-04	205

Table A-1 continued

	Company – Madison County	City	Employs	Sales	NAICS	SIC	AIRS	PCS	RCRA	TRI
80	Plastex Enterprises, Inc.	Alton	10	$500,000-$1M	326199	3089				
81	Poly-Fab, Inc.	South Roxana	1	< $500,000	326199	3084				
82	Prairie Farms Dairy, Inc.	Granite City	250	$50M	311511	2024	Minor		NIU-00	2006
83	Precoat Metals	Granite City	65	$10M-$25M		3479			LQG	
84	Precoat MMC	Granite City	40	$1M-$8M	332812	3479	Minor		LQG-04	2005
85	Premium Aircraft Painting, Inc.	East Alton	8				Minor		LQG	
86	R F Technologies, Inc.	Bethalto	49	$5-$10M	333294	3589				
87	R P Machine Works	East Alton	1	< $500,000	332710	3599				
88	Reilly Industries, Inc.	Granite City	50	$5M-$10M		2851	Minor	Non-Maj	LQG-04	2006
89	Richards Brick Co.	Edwardsville	105				Minor	Non-Maj		2006
90	Robinson Steel Co., Inc	Granite City	24		331221	3312				
91	Roney Machine Works, Inc.	Alton	15	$1M-$5M	332710	3443				
92	Steel Works LLC	Granite City	40	$15M-$20M		3312	Minor	Non-Maj	LQG-85	2001
93	Team Industrial Services, Inc.	South Roxana	90	$3M-$6M	332811	3398			SQD-05	
94	The Premcor Refining Group	Hartford	300	> $100M	324110	2911		Non-Maj	LQG-05	2005
95	Tinsley Steel, Inc.	Edwardsville	9	$2M	332323	3446				
96	Trouw Nutrition USA LLC	Highland	39						NIU-04	2005
97	United States Steel Corp.	Granite City	2850	> $100M	331221	3312	Major		LQG-04	2005
98	US Filter Corp.	Granite City	8	$1M-$5M	325188	2819				

Table A-2. Companies in St. Clair County.

	Company - St. Clair County	City	Employs	Sales	NAICS	SIC	AIRS	PCS	RCRA	TRI
1	A B M Marking Ltd.	Belleville	10	$1M-$5M	325910	2893				
2	A-A-A Tool & Machine Co.	O'Fallon	7	$1.2M	333514	3544, 3469, 3599				
3	Accurate Ironworks	Millstadt	3	< $500,000	332710	3599, 3446				
4	Accuwright Fiberglass	Cahokia	4		327993	3089				
5	Affton Fabricating & Welding Co.	Sauget	30	$12M	332312	3446				
6	Afton Chemical Corp.	East St. Louis								
7	Allied Tool & Machine	Belleville	6	< $500,000	333514	3544, 3599				
8	American Decorative Surfaces, Inc.	Dupo			323111	2754	AS Min-05	Non-Maj	LQG-04	2006
9	American Pallet-Midwest, LLC	East St. Louis	26	$1M-$5M	321920	2448				
10	American Recycling	Belleville	2	< $500,000	331312	3341				
11	Andria's Steak Sauce	O'Fallon	7	$0.5M-$1M	311941	2035				
12	Applied Technologies Group	Belleville	5	$0.5-$1M	333315	3953				
13	Art Faltus Welding	Belleville								
14	Asphalt Sales & Products, Inc.	Mascoutah	8	$2M-$3M	324121	2951				
15	Atlas Ready Mix	East St. Louis								
16	Austine-Wilke, Inc.	Belleville	1	< $500,000	311812	2051				
17	Avtec, Inc.	East St. Louis	10	$0.5M-$1M	336321	3647			SQG	
18	B. Dash Fabrication, Inc.	Belleville	3	< $500,000	333514	3544				
19	Bell City Battery Manuf., Inc.	Belleville	6	750000	335911	3691, 3629	Min-05	no	no	no
20	Belleville Automotive Inc.	Belleville	6	$0.5-$1M	336312	3519				
21	Belleville Pattern Co., Inc.	Belleville	5	$400,000	332997	3543, 3599				
22	Belleville Seed House Inc	Belleville	7	$2.5M-$5M	311211	2041				
23	Belleville Shoe Manuf. Co.	Belleville	225	$10M-$25M	316219	3143	Maj-05	no	CESQG	2005
24	Beno J.Gundlach Co.	Belleville	30	$1M-$5M	332212	3545				
25	Bertco Enterprises, Inc.	Belleville	4	$100000	339943	3953, 3993, 3231				

Table A-2 continued

	Company - St. Clair County	City	Employs	Sales	NAICS	SIC	AIRS	PCS	RCRA	TRI
26	Bertels Sales & Service	Dorsey	4		334419	3679				
27	Bestest, Inc.	Caseyville	4	< $500,000	326199	3089				
28	Big River Zinc Corp.	East St. Louis	312	> $100M		3339, 2819	Major	Non-Maj	LQG	2005
29	Boothe, Inc.	Dupo	30	$1M-$5M	333511	3544				
30	Bradford Electric Co., Inc.	East St. Louis	24	$1M-$5M	335312	3621			SQG-98	
31	Building Products Corp.	Belleville	20	$5M-$9M	327390	3272	Min-05	Non-Maj	no	no
32	Cablofil, Inc.	Mascoutah	40	$2.5M-$5M		3496				
33	Casper Stolle Quarry Co	Dupo	20	$1M-$5M	327991	3281		Non-Maj-97		
34	Casper Stolle Quarry Co.	Dupo								
35	Centreads Inc.	Belleville	15	$1M-$5M	326212	3011				
36	Century Brass Works, Inc.	Belleville	75	$10M	332710	3599, 3363, 3364	Min-05	Non-Maj	CESQG	no
37	Cerro Flow Products Co.	St. Louis			331421, 331423, 331525	3331, 3341, 3351, 3366	Major-06		LQG-04	2005
38	Classic Manuf., Inc.	East St. Louis	2	< $500,000	332439	3412				
39	Crystal Graphics, Inc.	Millstadt	3	< $500,000	327215	3231				
40	Custom Marble, Inc.	Millstadt			326191	3088	Major - 05	no	SQG-86	2006
41	Custom Towels, Inc.	Freeburg	3	$1M	323113	2259				
42	D C I Wood Shop	Lebanon	3	< $500,000	339999	2499				
43	Darling International, Inc.	Nat'l Stock Yards	34	$1M-$5M	311613	2077	Minor-05		SQG-97	
44	Dawe Memorial Co.	Belleville	3	< $500,000	327991	3281				
45	Deli Star Corp.	Mascoutah	25	$1M-$5M	311612	2011				
46	Delta Label, Inc.	Belleville	3	< $500,000	322222	2672				
47	Diversified Packaging Services, Inc.	Millstadt	3	$0.5M-$1M		3861, 3089		Non-Maj		
48	Dove Industries, Inc.	Belleville	16	$1.2M	332618	3496, 3499, 3599				
49	Drexel House of Drapes Inc.	Belleville	4	$0.5M-$1M	314121	2391, 2591				

Table A-2 continued

	Company - St. Clair County	City	Employs	Sales	NAICS	SIC	AIRS	PCS	RCRA	TRI
50	East Side Tool & Die Co., Inc.	Caseyville	8	$0.6M-$1M	333514	3599				
51	Elementis Pigments, Inc.	East St. Louis	100	$25M-$100M	325998	2861	Major	Non-Maj	SQG	2001
52	E-Lite Tool & Mfg. Co.	Belleville	20	$2M	332999	3544, 3599				
53	Empire Comfort Systems, Inc.	Belleville	225	$25M-$100M	333414	3433				
54	Farmers Manuf. Co., Inc.	Dorsey	3	$0.5M-$1M	325314	2875				
55	Feurer Lumber Co.	Freeburg	3	60000	321113	2421, 2448, 2511				
56	Gaskets & Seal Fabricators	Sauget	20		339991	3053				
57	Gateway Fabricators, Inc.	East St. Louis	7	$0.5M-$1M	336212	3714				
58	Gateway Food Products Co.	Dupo	12	$14M	311999	2899				
59	Gateway Petroleum Co., Inc.	Belleville	10	$0.5M-$1M	331492	2992	Min-05		LQG	
60	Gateway Shoe Machines	Lebanon	5	$0.5M-$1M	316219	3559				
61	General Chemical Corp.	East St. Louis	30	$5M	325998	2819	Minor	Non-Maj	NIU	2005
62	General Machine, Inc.	Freeburg	8		331221	3312				
63	Glenn Friederich's Auto Radiator	Belleville	3	< $500,000	336399	3714			SQG-91	
64	H & R Tool & Machine Co.	Caseyville	4	< $500,000	332710	3599				
65	Handy Feed	Millstadt	8	$5M-$10M	311119	2046				
66	Hans Rag Shop	O'Fallon	3	< $500,000	314998	2392				
67	Illini Concrete, Inc.	Belleville	35		327320	3273	Min-05	Non-Maj		
68	Illinois Missouri Gear & Manuf.	O'Fallon	2	< $500,000	333612	3462				
69	Industrial Gas Products	Sauget	5	$0.5M-$1M	325120	2813				
70	Interstate Industrial Tech.	Dupo	5	$0.5M-$1M	326199	3565				
71	Jet Aerobics, Inc. (Jet Precast?)	O'Fallon	10	$0.5M-$1M	327390	2272				
72	K & D Motors, Inc.	Millstadt	7	$1M-$2.5M	336399	3714				
73	K S M Sheet Metal Co. Inc.	Belleville	10	$0.5M-$1M	332322	3444				
74	K.L. Metal Fabricating Inc.	East St. Louis	55	$1M-$5M	332999	3499				
75	Kaskaskia Tool & Machine Inc.	New Athens	32	$1M-$5M	333514	3544, 3469, 3599, 3559				

Table A-2 continued

	Company - St. Clair County	City	Employs	Sales	NAICS	SIC	AIRS	PCS	RCRA	TRI
76	Keil-Forness Comfort Systems	Belleville	4	< $500,000	332322	3444				
77	Kempen Paint Co.	East Carondet	14	$1M-$5M	325510	2851	Minor	Non-Maj	LQG	2006
78	Kerry Inc.	Millstadt	130	$5M-$10M	311822	2052				
79	King's Food Products	Belleville	12	$1M-$5M	311612	2013, 2035				
80	Kinzel Fabrication	Marissa	3	< $500,000	332999	3499				
81	Koderhandt, Inc.	Belleville	3	< $500,000	332813	3471				
82	Konvex Rubber, Inc.	East St. Louis	25		326299	3069				
83	Kostelac Grease Service Inc.	Belleville	25	$1M-$5M	311225	2076				
84	Kraus Co., Inc.	Millstadt	1	< $500,000	337127	2599				
85	M & D Auto Parts & Machine Shop	Freeburg	2		332710	3714, 3599				
86	Martin Steel Fabrication, Inc.	Mascoutah	4	$1M-$2.5M	331111	3312				
87	Mascoutah Heating & Cooling	Mascoutah	2	< $500,000	332322	3444				
88	Material Resource, LLC	East St. Louis	20	$5M-$10M	311119	2048				
89	McCann Concrete Products	Dorsey	25	$1M-$5M	327390	3272				
90	McLeod U.S.A.	Fairview Heights	17	$2.5M-$5M	334613	3695				
91	Mercurio Sheet Metal, Inc.	Belleville	5	< $500,000	332322	3444		Non-Maj		
92	Metro East Manuf. Co.	Belleville	16	> $1.25M	332710	3599, 3471		Non-Maj		
93	Metro Ice Inc.	Belleville	15	$10M-$25M	312113	2097				
94	Midcoast Aviation, Inc.	East St. Louis			48819, 48811	4581	Minor	no	LQG-04	no
95	Mid-States Equipment, Inc.	Belleville	4	< $500,000	314911	3559				
96	Millstadt Rendering Co.	Belleville	20	$5M-$10M	311613	2077				
97	N P T Machine Shop	Belleville	1	> $500,000	336312	3519				
98	National Tool & Machine Co., Inc.	East St. Louis					Minor	no	LQG-02	no
99	Nuplex Resins LLC	East St. Louis					Major	no	LQG	2005
100	Obies Tackle Co., Inc.	Belleville	20	< $500,000	331111	3312				
101	Occidental Chemical Corp	Sauget			325612	2869	no	no	no	2006

Table A-2 continued

	Company - St. Clair County	City	Employs	Sales	NAICS	SIC	AIRS	PCS	RCRA	TRI
102	O'Fallon Lumber Co.	O'Fallon	8	$2M-$3M	321113	2421				
103	O'Fallon Pressure Cast, Inc.	O'Fallon	5	< $500,000	332997	3543				
104	O'Neil Lumber & Millwork	East St. Louis	50	$12.5M	321114	2421, 2431, 2499				
105	Packers By-Products Co.	Nat'l Stock Yards	10	$1M-$5M	311613	0				
106	Plas-Co. Inc.	Millstadt	10	$0.5M-$1M	337110	2434, 2431		Non-Maj	CESQG-94	
107	Prairie Farms Dairy, Inc.	O'Fallon	35		311511	2024				
108	Precision Millwork Co.	Belleville	20	$1M-$5M	337110	2542				
109	Pressure Pumps Supply, Inc.	Lebanon	1	< $500,000	333912	3561				
110	Progressive Rec>y Inc.	Dupo	60	$10M		3569				
111	R & S Iron & Metal	O'Fallon	1	< $500,000		3312				
112	R P S Specialty Prod. Inc.	Lebanon	8	$1M-$5M	326291	3089, 3061				
113	Renaissance Chemical, Inc.	Nat'l Stock Yards	10	$5M-$10M	325998	2841				
114	River City Landscape Supply, Inc.	Sauget	50	$10M-$25M	325320	3524				
115	Roc Industries, Inc.	Belleville	15	$1M-$2.5M	332813	3471				
116	Safety-Kleen Systems, Inc.	Caseyville			56199	7389	Minor	Non-Maj	LQG-04	2006
117	Schwend's Ready-Mix	O'Fallon	15	< $500,000	327320	3273	Minor	Non-Maj		
118	Siemens Manuf. Co. Inc.	New Athens	136	$16M	335929	3672	Minor	Non-Maj	CESQG	2001
119	Siemens Manuf. Co., Inc.	Freeburg	50	$1M-$5M	334418	3672				
120	Sleepmatters	Belleville	6	< $500,000	337910	2515				
121	Solutia, Inc.	Sauget	550	$25M-$100M	325998	2869	Major	Non-Maj	LQG	2005
122	Solvay Flourides, Inc.	East St. Louis	42		325998	2819	Minor	no	CESQG	2005
123	Special Metal Fabrication	Mascoutah	2	< $500,000	332999	3499				
124	St. Clair Service Co., New Athens	New Athens			325314	2875	Min/Enf		CESQG-93	
125	St. Louis Auto Shredding	Nat'l Stock Yards	85	$5M-$10M	331492	3341				
126	St. Louis Flexicore, Inc.	East St. Louis	10	$1M-$5M	327390	3272	Minor			

Table A-2 continued

	Company - St. Clair County	City	Employs	Sales	NAICS	SIC	AIRS	PCS	RCRA	TRI
127	Sun Infrared Technologies, Inc.	O'Fallon	3	$2M	333315	3861				
128	T & D Belting & Repair, Inc.	Cahokia	3	< $500,000	333922	3496				
129	T. J. Gundlach Machine Co.	Belleville	100	$10M	333131	3532				
130	Tinney Tool & Machine Co., Inc.	Belleville	5	$0.5M-$1M	332710	3599				
131	Tisch Monuments, Inc.	Belleville	3	< $500,000	327991	3281				
132	Top Metal Buyers, Inc.	East St. Louis	25	< $500,000	331492	3341				
133	Traube Canvas Products, Inc.	Belleville	10	500,000	314912	2394, 2591				
134	Triple B Manuf. Co., Inc.	Mascoutah	7	$250,000	336211	3799				
135	U.S. Smelting Furnace Co.	Belleville	3	$0.5M-$1M	333415	3567, 3569				
136	Upchurch Ready Mix Concrete	Belleville	5		327320	3273				
137	Vasquez Metal Products, Inc.	Lenzburg	8	$1M-$5M	331111	3312				
138	Vertex Chemical Corp.	Dupo	18	$1M-$5M	325199	2819	Minor	Non-Maj	no	2005
139	Videojet Technologies, Inc.	Belleville			333313	2893	Minor	no	LQG	2001
140	Weiss Monument Works	Belleville	2	< $500,000	327991	3281				
141	Weyerhaeuser Co.	Belleville	140	$30M	322211	2653				
142	Weyhaupt Bros. Packing Co.	Belleville	25	$1M-$5M	311612	2011				
143	Wood Bakery	O'Fallon	25	$2.5M-$5M	311812	2051				

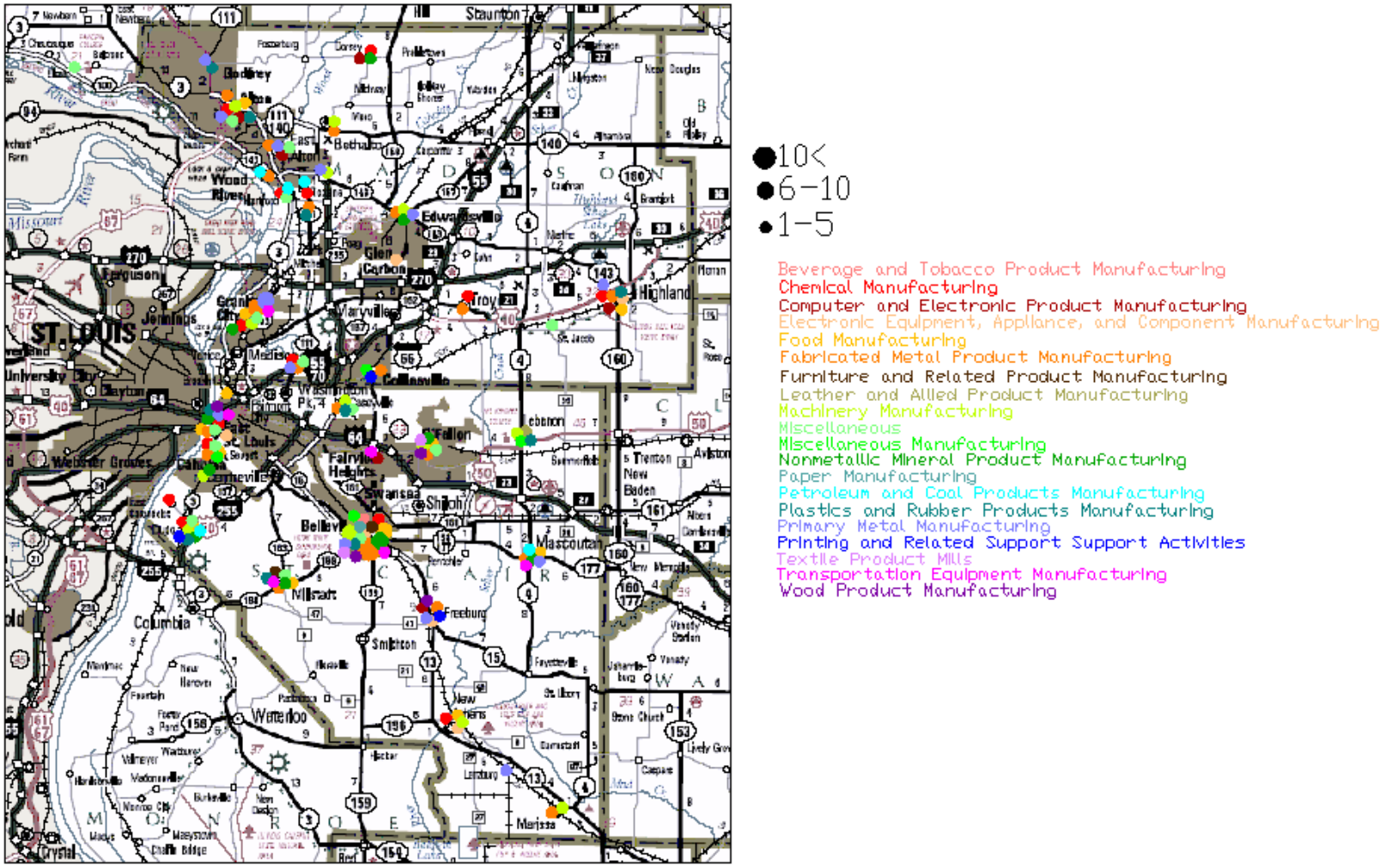

Figure A-1. Madison and St. Clair County business type and density.

Table A-3. Number of businesses by city.

City	Businesses	City	Businesses
Alton	21	Hartford	5
Belleville	61	Highland	11
Bethalto	2	Lebanon	5
Cahokia	3	Lenzburg	1
Caseyville	4	Madison	5
Collinsville	4	Marissa	2
Cottage Hills	2	Mascoutah	7
Dorsey	3	Millstadt	11
Dupo	10	National City	1
East Alton	6	Nat'l Stock Yards	4
East Carondet	1	New Athens	3
East St. Louis	25	O'Fallon	13
Edwardsville	11	Roxana	3
Elsah	1	Sauget	8
Fairview Heights	2	South Roxana	2
Freeburg	6	St. Jacob	1
Glen Carbon	1	Troy	2
Godfrey	2	Wood River	3
Granite City	27		

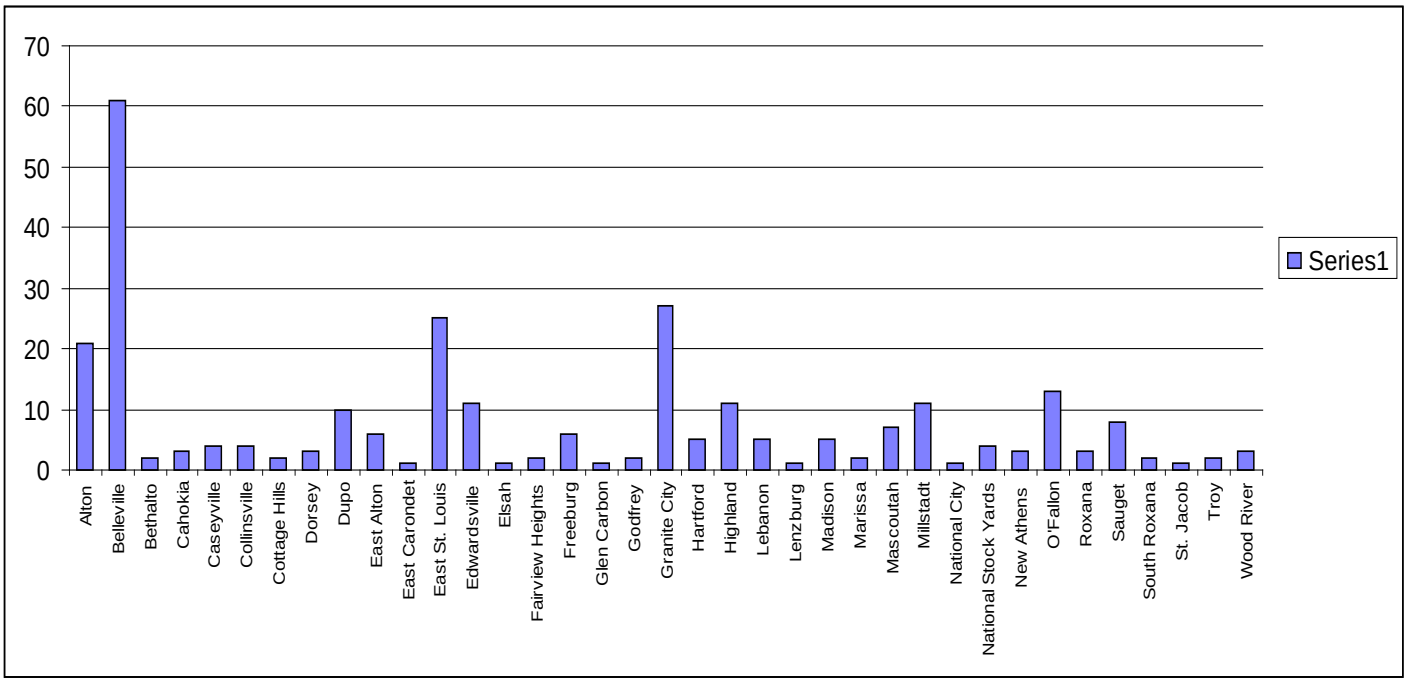

Figure A-2. Number of businesses by city.

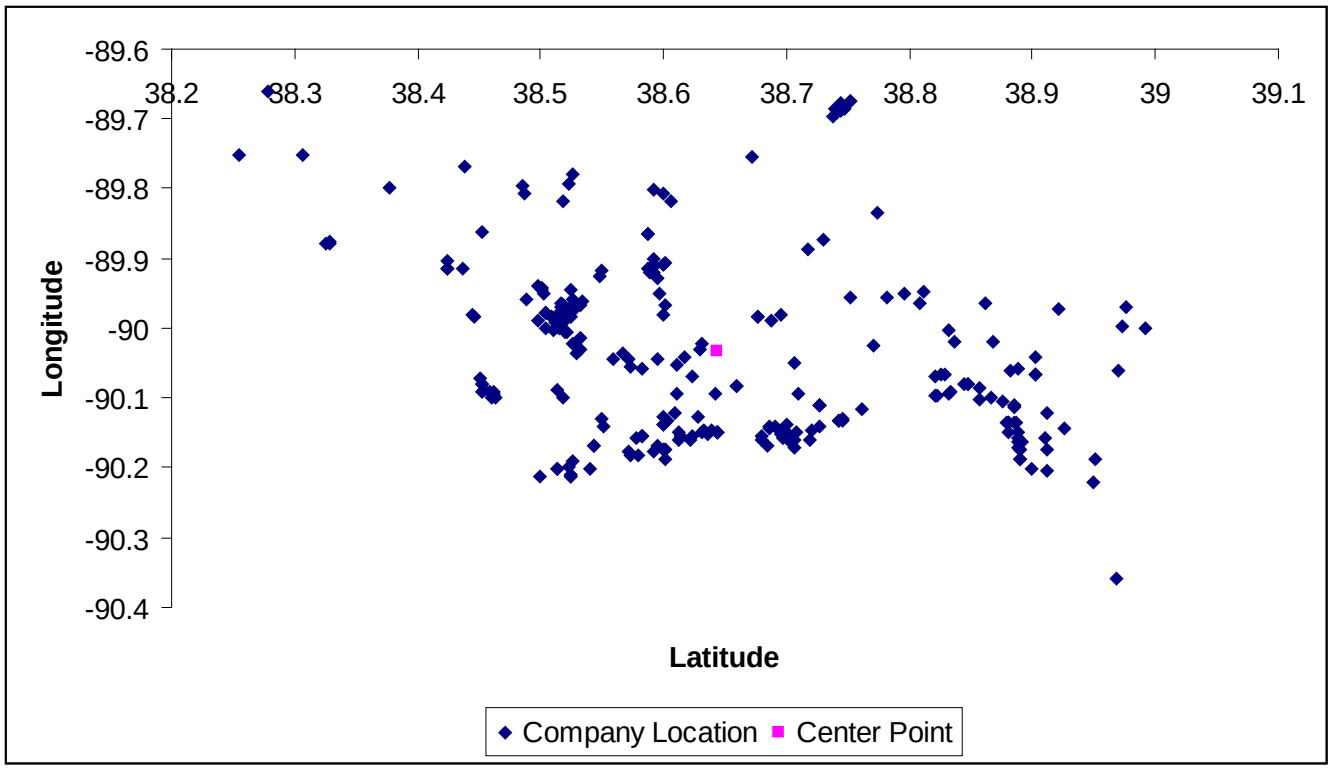

Figure A-3. Business locations and center point (near Caseyville).

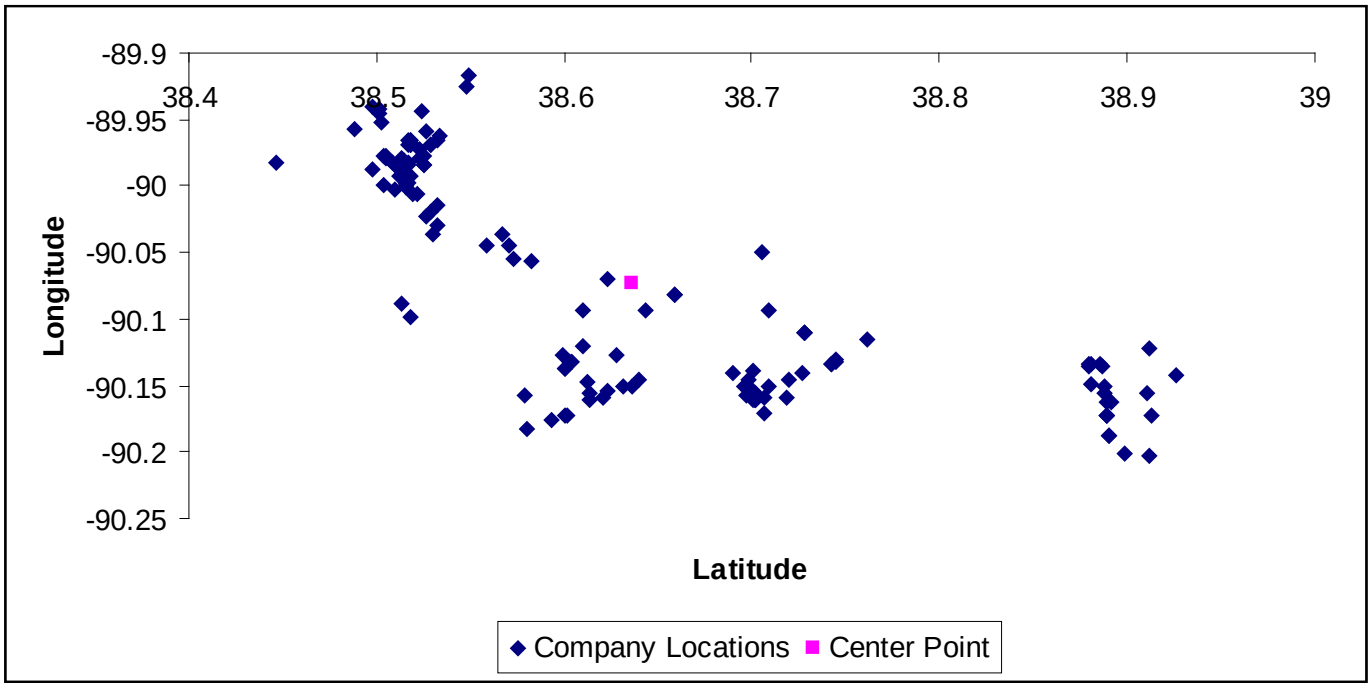

Figure A-4. Business locations of the four densest cities and center point (near Washington Park).

APPENDIX B

DATABASE OF EXISTING REGIONAL ORGANIZATIONS

Table B-1. Existing regional organizations.

	Organization	Location	Website
1	Air & Waste Management Association (AWMA) - Greater St. Louis Section	St. Louis, MO	http://www.awmastl.org/pmwiki/pmwiki.php/AWMASTL/
2	American Chemistry Council	St. Paul, MN	http://www.americanchemistry.com/s_acc/index.asp
3	American Petroleum Institute	Washington, DC	http://www.api.org/
4	American Public Works Association, IL Chapter, Dist 8	Collinsville, IL	http://illinois.apwa.net/
5	American Society of Civil Engineers - St. Louis Section	St. Louis, MO	http://sections.asce.org/stlouis/
6	Chemical Industry Council of Illinois	Springfield, IL	http://www.cicil.net/
7	Illinois Environmental Protection Agency- Collinsville	Collinsville, IL	www.epa.state.il.us
8	Illinois Manufacturers Extension Center	Red Bud, IL	www.imec1.org
9	Illinois Manufacturers Extension Center	Carbondale, IL	www.imec1.org
10	Illinois Office of Pollution Prevention	Collinsville, IL	www.epa.state.il.us/p2
11	Illinois Precast Concrete Association	Manhattan, IL	http://www.precast.org/about/affiliates.htm
12	Illinois Society of Professional Engineers, St. Clair Chapter	Collinsville, IL	www.illinoisengineer.com/chapters/stclair
13	Gateway Society Hazardous Waste Managers	St. Louis, MO	www.gshmm.org
14	Madison County Health Department	Wood River, IL	www.madisoncountyhealthdepartment.org
15	Madison County Planning and Development Department	Edwardsville, IL	www.co.madison.il.us
16	National Paints and Coating Association	Washington, DC	http://www.paint.org/index.htm
17	National Precoat Concrete Association	Indianapolis, IN	http://www.precast.org
18	NSF International	Ann Arbor, MI	http://www.nsf.org/
19	Small Business Development Center	Edwardsville, IL	www.siue.edu/BUSINESS/sbdc/
20	Southern Illinois Environmental Managers Association	Herrin, IL	www.siema-assoc.com
21	Southwestern Illinois Employers Association (SIEA)	Wood River, IL	www.siea.us
22	St. Clair County Health Department	Belleville, IL	http://www.scchd.org
23	The Growth Association of Southwestern Illinois	Godfrey, IL	www.growthassociation.com

Table B-2. Information about selected regional organizations in Table B-1.

	Goals	Audience	Educational Events
1	Provide training, information, and networking opportunities for environmental professionals.	Educators, researchers, regulators, industry, consultants, general public	Monthly meetings, ERG
2	Advocate for the chemical industry while working to protect the environment, public health, and security.	US chemical companies	
3	Advocate for the oil and natural gas industry. Support research and provide statistics. Develop standards and certify equipment and operations.	Petroleum industry	Meetings, training (API Univesity), conferences, and workshops.
4	Members gateway source for education, knowledge exchange, & services. Public policy advocate for the public infrastructure. Recognized for credible info and preferred choice for Professional membership.	Public agencies and private sector companies	Variety (Construction Inspection, Public Fleet Mgmt, & Self Assess. Using Mgmt Practices Manual) of live instructor-led workshops.
5	Provide essential value to our members, their careers, our partners and the public by developing leadership, advancing technology, advocating lifelong learning, and promoting the profession.	Consulting CE's	•Continuing Education Requirements for Licensure --> Calendar of events with descriptions in newsletter
6	Ensure the viability and promote the interests of the chemical industry with a broad political base, regulatory input, grassroots support, and networking.	Illinois chemical companies	•Career Conference •Teachers Workshop •Scholarship Luncheon •CHEMAGIC Roadshow •Science Discovery Program- educates and entertains over 8,000 teachers and students each year
8	Improve manufacturing productivity and competitiveness.	Illinois Manufacturers	Higher Ed. Partners (Ex. SIUE, SIUC, EIU, Bradley) to co-sponsor workshops, conferences, & seminars
9	Improve manufacturing productivity and competitiveness.	Illinois Manufacturers	Higher Ed. Partners (Ex. SIUE, SIUC, EIU, Bradley) to co-sponsor workshops, conferences, & seminars
10	Promote pollution prevention (P2) as the preferred strategy for environmental protection through educational, technical assistance, regulatory integration and voluntary recognition initiatives.	Illinois businesses, citizens, and communities	Statewide conferences and regional workshops to inform facilities about P2 techniques, resources and management tools. Provides speakers for organizational meetings, company functions and seminars.
13	Provide a forum in the Saint Louis area for environmental, health, and safety (EHS) regulations governing hazardous materials and wastes; and to establish a network of multi-disciplined professionals in the EHS fields.	EHS professionals in the St. Louis bi-state region	•Monthly meetings with speakers from St. Louis HazMat Response, OSHA, MDNR, IEPA, USEPA, consultants, and attorneys •3-day Certified Haz Mat Mngrs (CHMM) review course through SLU • CHMM courses in several cities •Annual National Conference
14	To maximize community health through education, partnership, and preventative services.	Madison County community	Health Education Team: health fairs, school events, presentations, consultations

Table B-2 continued

	Goals	Audience	Educational Events
16	Primary role is to serve as an ally and advocate on legislative, regulatory and judicial issues at the federal, state and local levels for paint and coatings manufacturers and raw materials suppliers and distributors.	Paint and coatings manufacturers, raw materials suppliers and distributors	•Technical Training Calendar lists several seminars held throughout the world and many short courses held at Eastern Michigan University like Automotive Substrate Protection, All About Additives in Coatings, and Fundamentals of Rapid Cure Technologies
19	To provide management assistance to current and prospective small business owners.	Small business owners	Various seminars - How to make exporting easier, Extreme Entrepreneur Tour at SIUE. Small Business Basics, Entity Selection, Starting a SB
20	Promote Environmental Management (EM). Exchange Regulatory Information, EM Techniques, EM Ideas, and evaluate and comment on the effects of the Environmental Regulation on Industries.	Environmental managers	•Meets every even numbered month •The Southern Illinois Occupational Safety & Health Day
22	Promote and protect the health of the residents of St. Clair County in partnership with the people we serve.	St. Clair county community	

Table B-3. More information about selected regional organizations in Table B-1.

	Outreach Programs	Membership Development and Renewal	Sponsor and Interaction with Sponsor
1	•2-3/yr electronically, website archive •Understanding Air Quality Outreach Kit •Science Center Display •Science Fair	International, Local, Student	Civil & Env. Consult., Geotechnology, Inc., Hastings Engineering, NPN Environmental, TL Maddox, Trinity Consult., URS Corp.
2	•Website: Lists member companies. Provides information on the safety, health, environmental, and economic benefits of chemistry. •E-newsletters.		
3	•More than 200,000 publications/year on standards, products, etc. •E-newsletter •Education links for teachers and public	400 corporate members. Website describes the qualifications and benefits and provides an application form.	
4	•APWA Reporter Magazine-monthly, •Committee newsletters. •Interactive Internet education •Web based training •Online bookstore •Public Works Resource Catalog •Videos •CD-ROMS		Unique Paving Materials
5	•Current and past monthly newsletters available on website (PDF)	Local universities have student chapters, Professional membership through National	
6	•IL Chemical Education Foundation (ICEF) •Scholarships •Teacher Awards & Workshops •Career Conferences/Panels •Science Fair	May sign up for an membership application packet on the website.	•Members listed as a sponsor of the Career Conference, the Teachers Workshop, the Scholarship Luncheon, the CHEMAGIC Roadshow, and the Science Discovery Program., which educates and entertains over 8,000 teachers and students each year.
8	•Manufacturing Matters - Quarterly publication highlighting manufacturing improvements & innovation •eNewletter -> Solutions Source		•Nat'l Inst of Standards & Technol-MEP •IL Dept of Commerce and Economic Opportunity
9	•Manufacturing Matters - Quarterly publication highlighting manufacturing improvements & innovation •eNewletter -> Solutions Source		•Nat'l Inst of Standards & Technol-MEP •IL Dept of Commerce and Economic Opportunity
10	Website provides P2 fact sheets like: General P2 Checklist, P2 Fact Sheet for POTWs, Best Management Practices for Dairy Production, BMPs for Pork Production, and consumer P2 (travel, home office, etc.)	–	–

Table B-3 continued

	Outreach Programs	Membership Development and Renewal	Sponsor and Interaction with Sponsor
13	•On-line EHS bookstore •Links to environmental, safety, regulation, chemistry, emergency response, safety, health, and hazardous waste resources	Website provides application form •$25/yr •Member benefits- news & updates, expert resources, member directory, job and resume postings, mailing list, discounted meeting fees	•Bronze- $50--> directory (1/2 page), website, and annual business meeting recognition •Silver- $150--> bronze plus spring seminar notebook recognition (full page) •Gold- $250--> silver but with full page directory recognition
14	•Website: contact numbers, health promotion links, health topic links (CDC website) •Programs: IL Project for Local Assessment of Needs, Madison County Partnership for Community Health.		
19			SBA, lL Dept of Commerce and Economic Opportunity, SIUE School of Business
20	•One $500 scholarships/year to Kaskaskia College and one to John A Logan College for students pursuing an environmental career •Website provides links to USEPA, IEPA and SIEMA members	•About 60 members listed in the online directory •WMRC is a member	

APPENDIX C

TECHNICAL ASSISTANCE SURVEY

September 11, 2006

Dear Environmental Manager:

I would appreciate your help. The Illinois Waste Management and Research Center (WMRC), a division of the Illinois Department of Natural Resources, has contracted with Jim Zhou and me through Southern Illinois University Edwardsville to assess how best to provide technical assistance to local industry. To determine the current sources of technical assistance for local environmental and waste management professionals, we have designed the enclosed brief questionnaire. We estimate that it will take 5 to 10 minutes to complete.

Information obtained from this survey will help us to determine how technical assistance by WMRC to companies like yours can be improved. You can be assured of complete confidentiality. There is no form of identification to link your returned survey to you or your company.

We would appreciate you completing the "Environmental Technical Assistance Survey" (Questions are on both sides of the paper.) and returning it in the enclosed self-addressed postage-paid envelope or faxing it to my attention at 618-650-2555. (Remember if faxing it that there are questions on both sides.) I would appreciate receiving your completed survey by September 20.

If you believe someone else would be better able to complete the questionnaire, please forward it.

If you or someone else from your company is interested in participating in a future discussion on this topic, please provide me with your contact information. We plan to hold open meetings in late 2006 and early 2007.

Thanks in advance for your time and effort. If you have any questions about the project or about the questionnaire, please do not hesitate to contact me at 618-650-5014 or smorgan@siue.edu.

Sincerely,

Susan M. Morgan, Ph.D., P.E.
Associate Professor and Graduate Program Director

Enclosures (2): Questionnaire and Envelope

SOUTHERN ILLINOIS UNIVERSITY EDWARDSVILLE

Environmental Technical Assistance Survey

- All information and data contained in this survey are **confidentia**l. Any use or publication of the data **will not identify** the name or address of the company or individual completing the questionnaire.
- If your responses do not fit in the spaces provided, please use additional sheets and indicate the question to which the response applies.
- **If you are unable to complete the survey, please return it partially completed to help meet the project goals. Please return it by September 20 to Susan Morgan at the address or fax number on the back.**

---

1. Please indicate the county in which your facility is located. _____

2. Are you aware of the Illinois Waste Management and Research Center (WMRC)? _____ Yes _____ No

If no, skip to Question 7.

3. If yes, how did you hear about WMRC? Check all that apply.

   _____ WMRC publication or e-mail

   _____ Other government publication, including electronic

   _____ Other publication, including electronic

   _____ Colleague or business associate

   _____ Other _____
   Please specify.

   _____ Unable to recall

4. Have you used WMRC's services? _____ Yes _____ No

5. Comment on why you have or have not used WMRC's services.

6. How interested are you in using WMRC's services again or for the first time? Please circle your answer.

   No interest Little interest Some interest Interested Very interested

Skip to Question 8.

Continued on back

7. If you answered no to Question 1, please read the description below and rate your interest in WMRC's services.

   WMRC, a division of the Illinois Department of Natural Resources, has historically assisted Illinois businesses in reducing waste through laboratory services, information services, research funding, and technical assistance. WMRC is expanding its services to include process and energy efficiency. Through WMRC's efforts, Illinois businesses can become more efficient and competitive. (www.wmrc.uiuc.edu)

   Please indicate how interested you would be in using WMRC's services by circling your answer.

   No interest Little interest Some interest Interested Very interested

8. From which sources have you obtained technical assistance? Check all that apply.

   _____ Colleague or business associate

   _____ Consultant

   _____ IEPA Office of Pollution Prevention (OPP)

   _____ Other IEPA office or program

   _____ Local wastewater utility

   _____ Professional or technical organization _____
   Please specify.

   _____ WMRC

   _____ Other _____
   Please specify.

   _____ Have not obtained any technical assistance

9. Indicate how frequently you obtain environmentally-related information for work from each source listed. Also indicate the adequacy of the information (e.g., its relevance and timeliness). Use a scale of 1 to 5.

Source	**Frequency Obtain Information** (1 = Never to 5 = Often)	**Adequacy of Information** (1 = Inadequate to 5 = Vital)
Consultant		
Local organization (e.g., newsletter or meeting)		
National or state professional or technical organization (e.g., journal)		
Trade magazine		
Non-regulatory government agency		
Regulatory agency		
University (e.g., course or project)		
Within corporation/facility		
Outside colleague or business associate		
Other (Please specify.)		

APPENDIX D

ADVISORY GROUP SURVEY

Please provide your feedback for use in developing the models to provide technical assistance to local companies.

1. Please mark or provide your company's **top three** concerns regarding its operations as well as other concerns.

A Top 3 Concern	A Concern	Area
		Chemical management
		Energy use (e.g., lighting, boilers, compressed air)
		Hazardous waste management
		Hazardous waste generation
		Nonhazardous solid waste management
		Nonhazardous solid waste generation
		Personnel training
		Product quality
		Raw materials
		Safety
		Wastewater generation and disposal
		Water use
		Other
		Other
		Other

2. Please mark or provide what your company needs to address its top three concerns.

Needs	Resource
	External funding (e.g., grants)
	Information about techniques and/or technologies
	Information about organizations that provide assistance
	Third party assistance in identifying cost-saving projects
	Third party assistance in implementing cost-saving projects
	Third party review of operations
	Other
	Other

3. Please rank the following options from 1 (most helpful) to 8 (least helpful).

Ranking	Option
	Regular central presentations on topics relevant to Questions 1 and 2 (i.e., you would have to attend the presentation)
	Regular Internet-based presentations on topics relevant to Questions 1 and 2 (i.e., you could access the presentation from a computer)
	Regular networking opportunities with others in local industries (with or without a presentation)
	Regular networking opportunities with others in your type of industry (with or without a presentation)
	A peer relationship with a similar company
	Onsite assessments
	Website with links to information about techniques and technologies
	Website with links to organizations that provide assistance
	Other
	Other

4. Comments:

APPENDIX E

PARTNERING EVENT 1

CommonCents

Improving your bottom line through improved environmental, health, and safety practices

Practical Strategies for a "Greener" Business

Sponsored by:
Air and Waste Management Association – Greater St. Louis Section
Gateway Society of Hazardous Materials Managers
Waste Management and Research Center
SIUE Department of Civil Engineering

March 13, 2008 Schedule

Time	Event
7:30 – 8:10 a.m.	Registration, breakfast, and exhibits
8:10 – 8:30	Welcoming remarks Susan Morgan, SIUE Department of Civil Engineering Tim Lindsey, WMRC Dominic Grana, AWMA – Greater St. Louis Chapter Leo Oberle, GSHMM
8:30 – 9:00	Safety Regulatory Update Plus, Cynthia Wagner (OSHA)
9:00 – 9:30	Practical Approaches to Green Business, Tim Lindsey (WMRC)
9:30 – 10:00	Case Study 1: Simple and Cost Effective Energy Efficiency Opportunities, Todd Rusk (WMRC) and Mike Springman (WMRC)
10:00 – 10:15	Break and Exhibits
10:15 – 10:45	Case Study 2: Local Industry Waste Reduction, Kevin Hubbard (SIUE SIAM)
10:45 – 11:15	Case Study 3: Water and Energy Conservation at a Metal Fabricator, Dan Marsch (WMRC)
11:15 – 11:45	IMEC and Waste-to-Profit Network, Steve Bosworth (IMEC)
11:45 – 12:15	Exhibits

Make sure to turn in your completed evaluation form. Thank you.

CommonCents

Improving your bottom line through improved environmental, health, and safety practices

Presenter Biographies for March 13, 2008 Workshop

Steve Bosworth

Steve is an Account Manager with the Illinois Manufacturing Extension Center. He has more than 20 years of manufacturing experience in the metal fabrication industry. He has held positions in Quality control, project engineering, products application engineering, and manufacturing process engineering. Among his specialties are welding operations, product development, quality assurance, shop floor operations, material processing, manufacturing cells (planning and implementation), technical writing, metallurgy, safety training, and customer service. As a part of the IMEC Lean Team, he assists manufacturers to reduce waste, improve cycle times and boost their overall productivity. His experience includes value stream mapping, set up reduction, and cellular manufacturing. He earned his Associate's Degree in Welding Technology from Southwestern Illinois College, Belleville, IL and his Bachelor's Degree in Mechanical Technology from Washington University, St. Louis, MO.

Kevin Hubbard

Kevin earned a B.S. in Aerospace Engineering in 1991. In 1993, he earned an M.S.-in Engineering Management, specializing in Manufacturing Engineering. In 1996, he earned a Ph.D. in Engineering Management, again specializing in Manufacturing Engineering. Each of these degrees was from the University of Missouri-Rolla. In 1996, he joined the faculty at the University of Missouri-Rolla, where he served as Computer Integrated Manufacturing Laboratory Director and as Director of the Rapid Response for Missouri Manufacturing Productivity Initiative. In 1999, he was appointed as the founding Chairman of the newly formed Department of Engineering at Robert Morris University in Pittsburgh, Pennsylvania. In 2001, Kevin joined the Industrial and Manufacturing Engineering faculty of SIUE. He currently serves as the Director of the Southwest Illinois Advanced Manufacturing (SIAM) Center. The SIAM Center performs approximately 40 projects annually for small to moderately sized technical enterprises. These projects result in new product development, productivity and quality enhancement, and profitability enhancement for these enterprises.

Tim Lindsey

Tim is Manager of the Illinois Waste Management and Research Center's Pollution Prevention Program. He supervises a staff of 15 engineers and scientists that perform research on innovative industrial process technologies and provide technical assistance to industries regarding process improvement strategies. He has been with the Center since 1991 and has produced numerous publications on pollution prevention technologies and methods for promoting adoption of innovative pollution prevention practices. He was previously employed at one of the nation's largest energy processing facilities for Exxon for a total of 6 years and served as an environmental consultant for 5 years. He received his B.S. (1979) and M.S. (1980) in Environmental Science from Southern Illinois University and his Ph.D. (1998) in Environmental Planning from the University of Illinois.

Dan Marsch

Dan manages WMRC's Peoria office. He provides pollution prevention assistance to companies in Central and Western Illinois focusing upon process efficiency, green chemistry, energy efficiency, water conservation, raw material utilization, waste minimization and recycling. He works with companies as a "change agent," promoting a reduction in their environmental footprint while simultaneously improving their competitiveness and profitability. Additionally, Dan has collaborated in research involving: aqueous cleaners, enzymatic cleaners, chemical management services, efficiency performance contracting, membrane technology, and metalworking fluid management. He has a broad base of industrial experience in manufacturing, distribution, sales and customer relations spanning 20 years prior to joining WMRC. He holds a BA degree from Evangel University in Springfield, MO with continued undergraduate and graduate studies in business management and environmental science.

Todd Rusk

Todd, an engineer for WMRC's Pollution Prevention Program, has performed numerous projects evaluating the performance of various innovative technologies with respect to improving process efficiency and reducing waste. He has performed project work within the automotive, petroleum, metal fabrication, metal finishing, and linens industries, in addition to project work within the commercial sector. He has extensive experience dealing with industrial energy efficiency, industrial organic coatings, and metalworking fluids. Todd is a Certified Energy Manager by the Association of Energy Engineers and holds a BS in Mechanical Engineering from the University of Illinois at Urbana-Champaign.

Mike Springman

Mike is an Environmental Specialist and Manager of the Alton Office of the Waste Management and Research Center. He is responsible for providing pollution prevention (P2) assistance to industries in the Southern Illinois area. His P2 focus is on automotive and fleet maintenance, with additional experience in industrial application of membrane technologies, energy efficiency, alternative cleaning technologies and process efficiency. As a change agent, he works with companies to reduce costs that add no value to the product being produced. Mike has a BS degree in Environmental Biology from Eastern Illinois University. Prior to joining the Waste Management and Research Center, he worked as a Project Manager for a private environmental consultant and as an officer in the U.S. Army.

Cynthia D. Wagner

Cynthia graduated from SIUE with a B. A. in English and history She began her career with the Department of Labor in the St. Louis Area Office in 1978 as a Compliance Safety and Health Officer. She transferred to the Region V Belleville office and then to the Fairview Heights Office. In 2002, she became the Assistant Area Director and District Office Supervisor. She has conducted over 1500 investigations and inspections in construction, general industry, and maritime, including over 100 fatality investigations. She served as Trainer to the Public Sector for several new standards, including Hazard Communication, Trenching and Excavating, Confined Space, Lock out/tag out, Fall Protection, and Recordkeeping. In addition, Cynthia has worked on special projects in the Washington, DC OSHA Office of Public Affairs developing ergonomic strategies for industry. She also worked with International Labor Affairs on safety and health programs in Central America, personally going to Bolivia to work with labor, employers, and government officials to develop a tripartite agreement for establishing a safety and health program at the highest government levels.

APPENDIX F

PARTNERING EVENT 2

Energy Management Seminar

Co-sponsored by GSHMM, St. Louis AWMA, and Illinois Sustainable Technology Center (formerly Waste Management and Research Center)

When: November 13, 2008

11:30 a.m. Registration & Networking
12:00 p.m. Lunch
12:30 – 1:30 p.m. Presentations

Efficiency Performance Contracting: Reducing Wastes and Costs Through Innovative Supply Contracts by Tom Bierma, Ph.D.

Both large and small businesses are reducing wastes and costs by changing the way they buy from their suppliers. This presentation will present examples of chemical management services, energy performance contracts, tooling management, and other innovative supply relationships with a particular focus on smaller businesses.

Tom is a Professor of Environmental Health at Illinois State University. He has researched innovative supply relationships since 1994 and is the author of *Chemical Management: Reducing Wastes and Costs Through Innovative Supply Strategies* (2000, Wiley & Sons). He holds an MBA from the University of Illinois at Urbana/Champaign and a Ph.D. in Public Health from the University of Illinois at Chicago.

Effective Energy Management by Beth Burka, P.E.

An effective energy management program will save energy, lower utility operating costs, maintain or improve operations, and support an organization's environmental commitment. It begins by analyzing and benchmarking utility billing data to look for operating cost savings opportunities that require no capital outlay. This is a very different starting point than auditing buildings, replacing equipment, and installing controls. This approach requires a higher level of commitment by an organization because it is part of an on-going effort. These organizations systematically analyze energy and water use and then take actions that will save energy, minimize utility operating costs, and be forward-looking at energy costs, carbon/emissions trading, tax deductions, drought and weather trends, marketing, and other issues that businesses face today.

Beth is the founding principal of Energy Matters, Inc and Utilitalk.com. Since 1984, she has worked in the energy field as an HVAC system design consultant, in new product development for an HVAC manufacturer, as a technical marketing representative for a utility company, and as an energy manager. She is a professional engineer in Missouri, a certified energy manager, and a graduate of University of Missouri-Rolla and Washington University.

Where: Gateway Center, Collinsville
(Adjacent to I-70 at 1 Gateway Dr, 618-345-8998, www.gatewaycenter.com)

Cost: $15 for paid members, $25 for nonmembers (cash or check paid at the door)

RSVP by noon on Friday, November 7 to meetings@gshmm.org